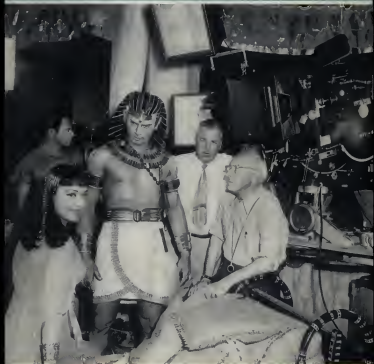


AMERICAN

JUNE • 1955

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY



This Issue ...

- The Trend To Wider Motion Picture Negatives
- New Magnetic Sound Recording Camera
- CinemaScope Photographic Techniques

25¢

FOREIGN 35¢



ON THE LIMBACE SET with the production team of Guild Films Co. That's Chief Cameraman Mack Stengler at right with pipe. The Libence there is seen on 350 studios throughout the country.



"THE CONSISTENCY OF DU PONT FILM is the great that we're never aware of changes from our heads to the other," says Mack Stengler to Assistant Guss Farnell and Du Pont Technical Representative Holly Moore.



"TAKE A LOOK," says Mr. Stengler as he poses various Sitter to Duke Goldstone, West Coast Executive Producer for Guild Films. Mr. Goldstone has this to say, "Du Pont Film is top... we've used it exclusively for three years."

"Our first takes are generally our final takes—thanks to dependable Du Pont Film and service"

says **Mack Stengler, ASC, Chief Cameraman for Guild Films Co., Inc.**

"Speed? It's terrific in our business. We haven't time to re-do a sequence because of poor negatives... and that's where the quality of Du Pont Film counts." So says Chief Cameraman Stengler of Guild Films Co., Inc., one of Hollywood's most successful TV production companies.

"Du Pont 'Superior' 2 places practically no limitations on cameramen. We can work with complete freedom and use most effective lighting than we can with other films. We normally shoot TV productions just as we would theatrical films. And, by using Du Pont Type 824 low contrast positive film, we are getting excellent prints that more than meet the high requirements of television.

"Look at the Libence set," continues Mr. Stengler. "To get a face above these snow-white drapes is really tough. But, with Du Pont Film, we do this sort of thing every day. It gives us exceptional latitude and image quality. In fact, this film gives me everything I want from the lab right on up. I've been using Du Pont Film since 1938... I'm sold on it and the service that goes with it."

For your television footage... studio, feature, sports and newsreel... be sure of the best. Specify Du Pont Film. There's a type to meet your exact requirements. Available in all standard lengths (100 to 2400 feet).

FOR MORE INFORMATION, write or call the nearest Du Pont District Office (listed below) or the Du Pont Company, Photo Products Department, Wilmington DE, Delaware, Inc. Canada: Du Pont Company of Canada Limited, Montreal.

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JUNIOR**

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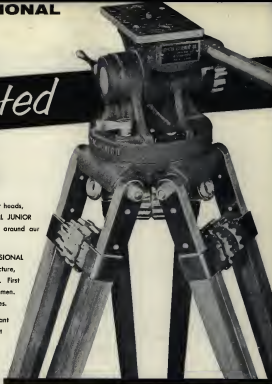
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tripod in
the world!

They've been standing on their heads,
trying to copy PROFESSIONAL JUNIOR
Tripod—but nobody can get around our
exclusive patented features.

Features which make PROFESSIONAL
JUNIOR tops in the motion picture,
TV and commercial film world. First
choice of professional cameramen.
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PROFESSIONAL JUNIOR—
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**New Professional Junior Adjustable wood
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Has substantial shoe and spur.
Measures from floor to flange 25" extended—
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859 Seward St., Hollywood 38, Calif.
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AMERICAN

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

ARTHUR E. GAYN, Editor

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VOL. 36

JUNE • 1955

NO. 6

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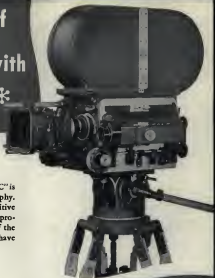
ON THE COVER

CECEL B. DEMILLE directs Ted Deery as Robinson II and Anne Baxter as the Princess Nefertiti in a scene for "The Ten Commandments." In back of Demille, ready to start the VistaVision camera, is Oscar-winning director of photography Leol Guggi, A.S.C. In left background is Frank Wenzner, makeup specialist.

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The great films of
Today are shot with
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The MITCHELL STUDIO MODEL "BNC" is a truly silent camera for sound photography. No blimp is required. Its smooth, positive operation saves many costly hours of production time. Since the introduction of the "BNC," more and more major studios have made it standard equipment.



The MITCHELL "16" is enthusiastically acclaimed by leading commercial producers as the first professional camera to bring theatre-like quality to the 16mm screen. Typically MITCHELL in design and workmanship, it contains the same proven features that made MITCHELL cameras famous throughout the world.

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NEW ARRIFLEX 16

The only 16mm camera providing through-the-lens focusing and viewing during exposure. A 400 ft motor drive 16mm reels \$149.00
16mm Reels 1/2 S lens \$175.00
16mm Reels 1/2 S lens \$205.00

AMICON-CINE VOICE

100 ft. 16mm camera
New \$195.00
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Autofocus, 200 ft. Mag. Camera

Autofocus, 200 ft. Mag. Camera

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BROOKS Cameras

45 BRADY at Madison Lane
SAN FRANCISCO, CALIFORNIA
PHONE EDIMON 3-7100

INDUSTRY NEWS



THREE for Peace honors—for quality, service, and economy—were awarded to Consolidated Film Industries in Billboard's recent TV film survey. Receiving plaques for CFI are Herbert J. Yenc, Pres. of Republic Pictures (L) and Ed Selzer, VP and Gen. Mgr. of CFI Inc. (R) presented award on behalf of Billboard.

"CinemaScope has given the industry a new look on a global scale," says Sydney P. Sklar, President of 20th Century-Fox, in his Award Report—1964 to stockholders.

"In order that every CinemaScope production will meet the highest possible standards," he continued, "we are pushing forward developments of technical improvements in all parts of the system. These . . . will show great greatly improved definition on all screens as to be readily recognized. . . . We expect to be ready to demonstrate these advances to the trade within a short time."

"This new planning for the improved CinemaScope system is based upon using a larger negative image, actually an image five times as large as the present, with all that this increased area means in greater ability to record details of a scene. . . . Using this process, pictures can be photographed on 35mm film and then capture there all the finer detail; they can then be reduced to our regular CinemaScope standard 35mm film for serving the vast majority of theaters all over the world."

The general trend to wider negative use by the major studios is the subject of an article elsewhere in this issue.

and advancement of color for TV will take no long to perfect is was required for motion pictures. Actually, we in the business of television film production have had a distinct advantage, having the experience, knowledge and know-how of top motion picture craftsmen, our technical progress with color has been greatly accelerated.

"The so-called high costs of shooting TV films in color is no longer a problem, at least now some producers have recently made statements to the contrary. For example, one reported that his overall production costs shot up over 20% when he switched to color negative. But he was shooting in 35mm. The trend now is to shoot in color TV films, and for obvious reasons. 35mm has been used up and now is shelving because most TV producers, formerly associated with the major studios, are more familiar with 35mm film and its equipment."

"While the negative cost difference between 35mm and 16mm in black-and-white is a negligible factor, in color it is substantial. One thousand feet of 35mm color film, plus a workprint, costs \$1,000, the equivalent screen time in 16mm color film plus work print costs only \$10."

A new 16mm film projector for telecasting magnetic as well as optical sound film was introduced last month by Bell & Howell Company, Chicago. According to the company, it is the first TV film projector which need not be electrically locked to the telecast signal. This means the elimination of an expensive special motor drive. To telecast a film, it is only necessary to set up the projector and press a button.

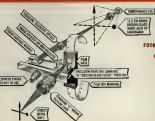


ENZO, 8900, U.S. distributor of Comacore cameras (above) visited the impressive dealer display at the Biennale de la Photo Cinema in Paris last month, demonstrated new electronic Comacore films.

Auricon

"SUPER 1200" CAMERA with Full-Frame Reflex Ground-Glass FOCUSING OPTICAL SYSTEM

The unique and versatile features built into the 16mm Auricon "SUPER 1200" Sound-On-Film Recording Camera have prompted Producers and Cameramen to name the Super 1200... "Finest 16mm Sound Camera ever built!" This Camera is "Self-Blinded" for whisper-quiet Studio work, has 33 minutes of continuous film capacity, Variable-Shutter or Kineascope "TV" Recording Shutter, plus the combined "Rifle-Scope" Telephoto Finder and Reflex-Focusing Optical System illustrated below. Its only equal is another Auricon "Super 1200"...



IN USE FOR FULL-FRAME GROUND-GLASS FOCUSING
"Super 1200" Reflex Ground-Glass Focusing-Frame indicates the field covered by any focal-length lens at all distances. A 30x enlarged Ground-Glass image is seen by the Cameraman, for needle-sharp critical focusing.



IN USE AS TELEPHOTO-FINDER DURING FILMING
No Camera-weight shift! as tripod legs when moving from focus to film-shooting position with the "Super 1200." Camera body does not shift to focus, or shoot film, as Optical-System Dove-Tail Carriage is only moving part!

THE CAMERA OF TOMORROW, HERE TODAY! ITS ONLY EQUAL IS ANOTHER AURICON "SUPER 1200"



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Model "CM-748" Features Include...

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- * "Super 1200" is Self-Blinded for completely quiet Studio use.
- * Built-in Electric Camera Heater with automatic Thermostat-Control, provides reliable all-weather Camera operation.
- * Geared Footings & Frame Coverlet with built-in neon-glow indirect light.
- * Two independent Finder systems in addition to Reflex Ground-Glass Focusing through the Camera lens; a brilliant spring-image Studio Finder, plus the "Rifle-Scope" precision-machined Telephoto-Finder.
- * 600 and 1200 ft. film Magazines available. Up to 33 minutes continuous filming.
- * During picture exposures, your film runs through the Auricon "Super 1200" Film Gate with the light-sensitive film emulsion accurately positioned on jewel-hard Sapphire Surfaces, an exclusive Berndt-Bach feature (U.S. Patent No. 2,535,755) This polished Sapphire Film-Gate is guaranteed scratchless and wear proof for infinite and scratch-free pictures, regardless of how much film you run through the camera!
- * Priced from \$4,982.15 complete for sound-on-film, \$3,795.65 without sound; choice of "C" Mount lenses and Carrying Cases extra.
- * Sold with a 30 day money-back Guarantee and One Year Service Guarantee, you must be satisfied. Write today for your free Auricon Catalog.

**Auricon
Hollywood**



Hollywood Bulletin Board



AT MICROPHONE, in photo above, is Sel Helprin, 20th-Century camera department head, who chairmanned the ASC's May meeting. Helprin made plea for closer surveillance of himself to promote clearer projection and thus gain best screen display of the industry cinema-



tegrapher's work. In adjacent photo, Helprin turns table over to Sid Rogell, executive production manager of 20th Century-Fox studio. Rogell regaled gathering with tale of his experiences over the years with many of the directors of photography present.

ASC's May Meeting was held at 20th Century-Fox studios through arrangements of Sel Helprin, the Society's vice-president, who chairmanned the meeting in the absence of president Arthur Miller.

Following dinner in the studio's Cafe de Paris, Sid Rogell, executive production manager, addressed the assembled Society members and reminded on his associations and experiences with many of the cameramen with whom he has worked in the past.

Sel Helprin emphasized the growing importance of encouraging all who attend theatres to campaign for better projection of motion pictures. He cited results of personal surveys in which the projectionists were found to be maintaining sharp focus.

Following this session, the group moved to the studio theatre, where William F. Kelly of the Research Council introduced Charles Headley of National Carbon Company, who gave a talk on the recently developed "yellow flame" carbon for color photography.

Test footage was screened that showed typical results achieved with the carbon on interior sets. The color tests had previously been shot at the various studios in CinemaScope and VistaVision.

Karl Freund, ASC, who is in Switzerland attending the International Commission on Illumination as a delegate.

last month was elected an Honorary Member of Delta Kappa Alpha, honorary cinema fraternity of the University of Southern California. Honor was in recognition of his "achievements and contributions to the cinema."

Still another honor was conferred on Freund last month when he was elected to membership on the Board of Directors of Marion Electrical Instrument Company, Manchester, N. H.

Freund, who is president of Photo Research Corp., Burbank, is also director of photography for Desilu Productions.



(INSET)

Short, 35 years in the motion picture industry, has had a long and varied career in the newsreel, documentary and feature production fields. He is presently free-lancing on the east coast.

Fitzgerald, veteran of 34 years in picture production, is presently at the Hal Roach Studios, where he has been directing the photography of various TV film productions.

John Boyle, ASC, last month wound up the photography on a series of training films for Texaco.

Wilton Knauer, ASC, 1964 Oscar winner for color cinematography (*Three Coins in the Fountain*), has been elected to the Board of Governors of the Academy of Motion Picture Arts and Sciences, Hollywood. Together with incumbent John Boyle, ASC, he will represent the industry's cinematographers in the Academy. Knauer will serve for a term of two years.

William F. Kelly, technical director of Motion Picture Research Council, Hollywood, will represent the U.S. at international meetings on cinematography in Stockholm, Sweden, June 11-16.

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FINEST

Sound

YOU'VE EVER HEARD

Walter Pidgeon, master of the cellosville



Top Quality...

Just as it requires artistic feeling and a touch of genius to master a musical instrument, so the human element enters into sound recording. TELEFILM has the finest system ever devised for Hi-Fi Sound Recording... the result of the skill and ability of the most highly trained soundmen in the industry working with the best equipment.

Complete Facilities...

Ever since they announced the development of the first high-fidelity sound recording for Kodachrome over sixteen years ago, the sound department of TELEFILM has continually grown and expanded. Today, their Hi-Fi sound studios are unequalled anywhere, with the facilities to handle any film recording job... no matter how large or complicated.

Speed...

TELEFILM's sound studios have more than kept pace with the ever increasing demand for more speed in production. They maintain a reputation for getting the work out faster and better... and at no increase in price you can afford.

TELEFILM STUDIOS has one primary objective, to help the Hi-Fi producer make better motion pictures. Their modern facilities for sound recording... optical or electronic sound printing... color printing with "Life-Like Color"... editing... titling... animation... special effects and the skill and know-how of the finest technicians in the industry are at your command.

*For complete information, visit Telefilm Studios
or write for descriptive literature*

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On all J. G. McAlister spot equipment, encircling every Fresnel lens zone, are special opaque bands, fused to the glass. They prevent flare and unwanted spill-light, by controlling side-beam deflection without loss of useful light. This guarantees you an accurate light—a concise, sharp-edged circle, from spot to flood.

Other exclusive J. G. McAlister features: "Firmo-Lock" nutro for positive alignment after every globe swivel; "Easy-Action" focus, from both front and rear.

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- 1 Take-up reels
- 2 Feed reels
- 3 Splicing elevator (40 seconds capacity)
- 4 Exhaust fan motor (1800 cfm)
- 5 Feed baffles with bottom screw vents
- 6 Drying air thermometer
- 7 Micrometer stripe adjustments
- 8 Binocular microscope
- 9 Sapphire shoes beneath precision striping heads
- 10 Splicing block
- 11 Air heaters
- 12 395° loader
- 13 High temperature drying chamber (4 minutes)
- 14 Removable partition facilitates threading
- 15 Low temperature drying chamber (2 minutes)
- 16 Sliding glass doors

Now the New 16-mm Magna-Striper applies Soundcraft Magnetic Oxide in three widths for three different purposes.

35-MIL MAGNETIC STRIPE for double-reelated films.

50-MIL MAGNETIC STRIPE for both magnetic and photographic sound.

100-MIL MAGNETIC STRIPE for all magnetic sound track.

NOW! "Oscar" Winning SOUNDCRAFT Magna-Striper® Available in New 16-mm Model!

HERE AT LAST is the answer to the demand for local striping service to provide true hi-fidelity 16-mm magnetic sound.

... an entirely self-contained, semi-portable, one-man operated magnetic oxide striping machine, identical in every vital feature to the now famous 35-mm Soundcraft Magna-Striper which won the coveted 1953 Academy of Motion Picture Arts and Sciences Award.

... the same fine Soundcraft engineering and construction that

every major Hollywood producer of CinemaScope has used to process stereophonic sound release prints.

With ease and precision this new equipment quickly applies two stripes of Soundcraft's perfected magnetic oxide to any 16-mm film... black and white or color, single or double perforation. Jeweled bearing shoes (Item 9 above) assure precision striping even with old, warped or distorted film... even when spliced and spliced! All wiring is explosion proof.

Write today for complete franchise information and full technical details about how you, too, can build a highly profitable business with this revolutionary new Model Z 16-mm Soundcraft Magna-Striper!

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New 35 mm Model 2A
With 180° Shutter

A TRULY GREAT CAMERA

for TV, Newsreel
and commercial
films



For tough and trying assignments, ARRIFLEX 35 is in a class by itself. Reflex focusing through photographing lens while camera is operating—this is just one outstanding ARRIFLEX feature.

Equipped with bright, right-side-up image finder, 655x magnification. Solves all parallax problems. 3 lens turret. Variable speed motor built into handle operates from lightweight battery. Synchronizer registering from 0 to 50 frames per second. Compact, lightweight for either tripod or hand-held filming. Takes 200' or 400' magazine. Write for free folder.

Blimp now available.
16mm ARRIFLEX also available.

FRANK J. SCHERER
CAMERA EQUIPMENT
1430 50th AVENUE, BAY VILLE, N.Y.

WHAT'S NEW

... in equipment, accessories, service

H-F Camera Pedestal

Houston-Fearless Corp., 11809 W. Olympic Blvd., Los Angeles 64, Calif., announces a new, lightweight, and highly maneuverable pedestal for television cameras. Known as model PD-7, pedestal weighs but 150 lbs., rolls easily on rubber-tired ball-bearing wheels, and will pass through a door as narrow as 20 inches. Two types



of steering are available, parallel steering for rolling dolly shots, and tricycle steering for rotation or sharp turnouts. Change from one to the other is a simple operation.

Camera may be elevated or lowered while dollying, if necessary—from 34 to 55 inches by means of a convenient handwheel.

New Office for Frost

Jack A. Frost, specializing in lighting equipment sales and rentals, with headquarters in Detroit, has opened a new office in Toronto, Ontario, Canada, at 425 Burnhamthorpe Road. Jim Fuller is manager.

Laboratory Services

Video Film Laboratories, 131 West 23rd St., New York 11, N.Y., offer 16mm film producers and cinematographers complete laboratory services, using latest type automatic film processing equipment. A new brochure and price list is available which describes the wide range of services offered.



Camera Bar Light

Natural Lighting Corp., 612 West 8th St., Glendale 4, Calif., offers a new portable bar light for hand-held motion picture cameras that utilizes two Air-cool lamps. Unit is said to provide substantial illumination. Lamps are adjustable to increase or decrease light beam width. Coupled with use of latest high-speed film, unit offers newsworld cameramen ideal source of light for all shooting conditions. Price is \$42.50 less lanterns and bulbs.



Sync Motor Drive

PAI Products Corp., 920 No. Garvin Ave., Hollywood 38, Calif., offers a new non-sparking synchronous 34 fps motor drive for Cine-Special cameras I and II. Features include explosion-resistant starting switch and wall plug. Unit is designed specifically for use with cameras in hospital rooms or wherever explosive atmospheric conditions may prevail. The unit may also be used with Boles H-16 and Cine-Kodak K-100 cameras with special mountings.

Foreign Language Conversions

Interlingua International, Carmel-by-the-Sea
(Continued on Page 322)

NOW...

DEVELOPED ESPECIALLY FOR THE

ARRIFLEX 16



NEW **ZOOMAR 16-S**

No movie camera is so well suited for the Zoomar varifocal lens as the Arriflex 16. It's the ideal combination because:

- 1** The Arriflex is the only camera with Mirror Reflex shutter, no external finder is used for the Zoomar lens...
- 2** You focus and view the scene while actually shooting—through the Zoomar lens...
- 3** You needn't remove other lenses because the divergent lens turret permits any two other lenses to be used with the Zoomar 16-S without optical or mechanical interference... and
- 4** The vertical lever action of the zooms control is smoother and more positive than the rotary movement usually employed.

SPECIFICATIONS

Vertical Range	25mm to 75mm
Aperture Range	f2.8 to f16
Focusing Range	3 feet to infinity
Built-In Lens Hood/Filter Holder for Series Y12	

\$579.00

Note: The Zoomar 16-S is not interchangeable with the standard model, nor can the standard model be converted for use with the Arriflex.

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Portable Field Power Supply



115-Volt 60 Cycle \$450

115-Volt 50 Cycle \$475

A 500-watt output location unit which supplies power for any standard 35mm or 16mm camera and Kinevox Recorder. Battery weighs 62 lbs., generator 72 lbs. Both are supplied in heavy-duty fibre-covered cases. Manual frequency control, frequency meter, two outlets, power switch. Just the answer for remote location recording problems! Hundreds in use throughout the world.

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Telephone: Victoria 9-3291

CABLE: KINEVOX, BURBANK

WHAT'S NEW

... in equipment, accessories, service

(Continued from Page 329)

The-Son, Calif., has been established to provide foreign language conversion of narrated films, be they sales presentation or travel films, 16mm or 35mm. Service includes providing new sound track masters, translated from the originals. Organizations' translators and narrators are native-born. Narrations in 27 different languages are available. Rate is \$325 per language per 15-20 minute film, which also includes necessary title work.



AB-Angle Dolly

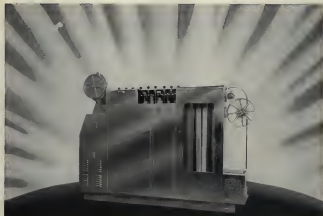
J. G. McAlister, Inc., 1117 No. McCadden Pl., Hollywood 38, Calif., has acquired the manufacturing, sales and rental rights to the original Dual Steering, AB-angle Camera Dolly formerly manufactured by Stevens Rentals, Hollywood. Manufacturing has begun on additional units which are to be made available on rental to motion picture and TV studios throughout the country.



Automatic Screen

Radiant Mfg. Co., 2627 W. Roosevelt, Chicago 8, Ill., announces an improved, low-cost automatic wall and ceiling screen designed for professional type installations. Switch operated and easily installed, it is available in 8 sizes from 6' x 16' to 12' x 12'. Cable and operating switch may be had for remote control.

(Continued on Page 337)



A SENSATIONAL NEW PROCESSOR!

at a sensational low price!

ALL NEW HOUSTON FEARLESS LABMASTER

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Data Sheets

Photo Research Corp., 127 West Alameda St., Burbank, Calif., now has available data sheets on the company's Spectra 3-Color meter, Spectra Color Densitometer, and the Spectra Brightness Spot Meter.

Photolamp Manual

A new manual covering the technical aspects of the various products used in the photographic lighting field has been issued by Sylvaria Electric Products, Inc., 1740 Broadway, New York 19, N. Y. Some of the subjects covered in detail are photoflash, photoflood, or Benaroflood, projector, enlarger and darkroom lamps. Speed charts give data on color temperature, light output, and shutter speeds and an exposure index. Manual is published in looseleaf binder format. New technical sheets are to be issued periodically. Price is \$2.00.

Kodak Handbooks

Kodak Books and Guides is title of newly-revised Kodak publication describing the many helpful booklets, brochures and books on photographic subjects available from the company by amateur and professional photographers. Available without cost from Kodak's Sales-Service Department, Rochester 4, N. Y., the pamphlet includes descriptions of the general contents of Vols. 1 and 2 of the well-known Kodak Reference Handbook on black-and-white photography, and of the Kodak handbooks dealing with other fields of photography. All of the photographic guides and charts which the company offers are also illustrated and described.

ASA Film Ratings

A new edition of the popular ASA Film Speed Values booklet has recently been published by Carl Zeiss, Inc., 485 Fifth Avenue, New York 17.

Booklet provides up-to-date film speed values for all popular films used in the U.S., black-and-white and color, still and cine. For those using systems other than ASA, a conversion table is provided showing equivalents in DIN, Weston, Scheiner, etc.

Data on New Auricon

A comprehensive data sheet illustrating and describing the new Auricon

Pro-600 model CM-75 16mm sound camera is offered by the manufacturer, Berritt-Berch, Inc., 6900 Romaine St., Hollywood 30, Calif. All of the exclusive features of this new camera are graphically illustrated, permitting a thorough "arm-chair" appraisal of the equipment. Included is a price list of the camera as dissociated equipment.

Lens Booklet

There's a free booklet on lenses all amateur movie makers should have, whether your camera is 8mm or 16mm. It's Kodak's Lens Book C16—and, if your dealer doesn't have it, write to Sales-Service Dept., Eastman Kodak Co., Rochester 4, N. Y.

Variable Shutter Data

How a variable shutter may be installed in 8mm and 16mm Bolex cameras is the subject of an interesting booklet available from Yulps Pellegriani, 1545 Lombard Street, San Francisco 23, Calif.

Camera Data

Descriptive literature is now available from Benjamin Berg Company, 3440 No. Van Ness Ave., Los Angeles 28, Calif., on all models of Camerette cameras, also on the new blimp for the Camerette. Of interest is the illustrated description of the novel reflex viewfinder which enables user of the Camerette to see the scene as it is actually being photographed by the camera.

Service Catalog

A catalog describing all of the equipment and services available on rental from Charles Ross, Inc., is available free to those in the industry by writing the company's service department, 333 West 52nd Street, New York 19, N. Y.

THE LITERATURE described above contains a wealth of valuable data for the cinematographer and others in the film industry. Unless otherwise indicated, copies are free. Requests should be addressed directly to the company named—not to American Cinematographer

—EDITOR



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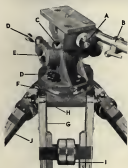
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The Trend To Wider Motion

Heretofore, as it always does, is repeating itself, and today we find the Hollywood motion picture industry again in the throes of new technical developments—this time the use of wider film negatives. Some old-time technicians in the industry might very well say, "This is where we came in," or more appropriately, "This is where we left off—in 1930."

Only last month industry trade papers carried front page news items about daily reporting on the activities of first one studio then the other toward the ending of the "Grandeur type" negative. The Hollywood Reporter, for April 22nd, carried an item headlined "35.625mm CinemaScope Film Being Shown in Two Weeks." On April 27th, Daily Variety's front page headline stated "Metro to Film Top Pin in Cinema." The following day, Hollywood Reporter's banner line announced, "20th Radiovision Shows Pin."

During the SMPTE convention in Chicago last month, Earl I. Spanable, research director for 20th Century Fox, announced that his studio was considering making a limited number of nitrate prints of some special pictures for roadshows in a larger projection frame area. The proposed new frame, he said, would be 35.625mm in width and would have about twice as much "information recording surface" as any other suggested large-screen process. Working with 20th Fox, he said, was Baruch & Leach who had already delivered the first sample lens to cover the additional area. It is understood that an experimental camera taking the new wide film has also been built by Fox engineers.

Paranurus, Inc., under the direction of Robert E. Gottschalk, reportedly has de-

veloped the Panatar film camera for use by Metro-Goldwyn-Mayer studios. This camera utilizes 65mm negative, same as used by the Todd-AO camera.

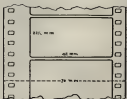
According to Mr. Gottschalk, the Panatar camera employs an anamorphic lens having one-half the "squeeze" power of a CinemaScope lens, or 1.5. Additional anamorphosis is employed in printing the negative in order to bring the print up to the full standard CinemaScope ratio.

The advantage claimed for this two-step process is that by using a less-powered anamorphic lens in the shooting, and by producing the anamorphosis in two separate steps, there is less aberration, barrel distortion, and anamorphism is the optical result.

An alternative method of using the Panatar film camera is also proposed. This is to shoot without an anamorphic lens on the camera, then use an anamorphic lens on the printer to squeeze the film negative image into the standard CinemaScope film frame.

Except for the application of CinemaScope to wide-negative photography, all the current wide-film developments duplicate to some extent the work done by studio engineers about 1930.

Paul Allen, prominent Hollywood camera engineer, covered the subject rather thoroughly in an article titled "Wide Film Development," which appeared in the "Cine-technique Annual," published in 1930 by the American Society of Cinematographers—a publication long since discontinued. For the education of readers, the greater part of this article is being reprinted in this issue, beginning in the next column.



GRANDUEUR—The first successful development in this century in wide-frame negative, created by Fox (now 20th Century-Fox) in 1929. (There were others prior to 1930). The Grandeur cameras were built by Mitchell Camera Corp.

Editor's Note—The following is a condensation of a summary on wide film development during the years 1929 and 1930, as reported by Paul Allen, a cinema equipment engineer, in the "Cine-technique Annual" for 1930.

One Of The outstanding developments of the past year in the motion picture industry has been the introduction of wide film. Even the advent of sound created no greater flurry of excitement than has the wide film problem. And now, even though the public has been permitted to view one of the results, no one seems to have any definite idea as to what the future will bring forth in the way of a standard size film. One thing seems certain—that we will have a standard film wider than the present standard of 35 millimeters. What the ultimate width will be is a problem.

Advocates of the 70 millimeter Fox Grandeur are predicting that width as the perfect one. But there has been a considerable swing to the idea that 65 millimeters will be the ideal width for the new standard. However, there is quite a mass on foot at this writing to bring about a compromise on a standard width of 60 millimeters.

Perhaps it would be proper at this point to briefly sketch the early history



"10-40118"—Providing a negative having a picture area 10 special holes in width is a pre-simplified new camera developed by John Arnold at M-G-M Studios. Film travels through camera horizontally, same as in VistaVision. Camera also provides interchangeable film movements so that pictures 8, 4, or 4 frames in width may be photographed, as desired.

Picture Negatives . . .

Studios have made many false starts
in this direction in the past but now
it looks like they're really on their way.

of wide film, because, while the majority of people think wide film is something new, it is, in reality, a revival of what took place far in the past. This is a natural conclusion to draw, however, because the standard width of film, 35 millimeters, has become so widely accepted that one often hears of it as the only standard of measure which is common to all nations.

Today producers are surrounded by a veritable chaos, as far as film width standard is concerned. And so it was back as the studios. Today the producers realize that a larger film must come in the not distant future, and

general way published regarding these various width films, the producing companies apparently have been somewhat reluctant to give much detailed and authentic information. From Paramount, where experiments have been conducted in 50 millimeters, there is practically no information available. RKO has issued much publicity regarding contemplated use of the Spoor-Bergman 63 millimeter film, but recent rumor has it that this concern is planning to take up the 65mm size.

However, there is a little more information available regarding the 70 millimeter film of the Fox Grandeur. The company has already presented this width to the public, and as a result of this and the advantages shown in the use of a film wider than the present standard of 35 millimeters, it is pretty generally agreed that a wider film than the 35 millimeter will be evolved out of the chaos.

In the case of Grandeur, the Fox film, the width of the film itself is 70 millimeters; while the frame is 22½ millimeters x 40 millimeters; leaving a sound track 7 millimeters wide in the customary position at the left of the picture.

The only difference between the

performances for this width film at this writing are found in the Eastman plant at Rochester.

The cameras used are made by the Mitchell Camera Company and are available on the open market. They are simply the standard Mitchell Camera enlarged laterally to accommodate the wider film. Wherever possible the parts are interchangeable with those of the 35 millimeter, and this feature has proved so popular that this is being done in a surprisingly large number of cases.

The most outstanding changes are found in the shutter, which had to be made practically double the size of the old one, and in the actual film moving mechanism. The gears of the Grandeur-Mitchell are cut differently, as the pitch of the Grandeur perforations is approximately 231" against a pitch of 167" for the 35 millimeter standard. In all other respects the 70 millimeter Mitchell is identical with the 35 millimeter model. Special Grandeur lenses having a greater angular covering power are used.

Grandeur projectors are being manufactured by the International Projector Corporation, and many of the major Fox theatres are being equipped with them, and according to the present plans of that organization, all the Fox houses will ultimately have this equipment.

What are the advantages of a wider film?

(Continued on Page 364)



45MM.—Actual size of 45mm negative used in the Fearless wide-film camera developed about the same time as Grandeur.

naturally, there is an effort being made to find a width which will be found as a standard. In the movies the same situation existed, and film was being used which ranged in width all the way from one-half inch to 70 millimeters.

At present, extensive work is being done on the Fox Case Grandeur in 70 millimeters; Spoor-Bergman in 63 millimeters; still another is 50 millimeters, and Ralph Fear of the Fearless Company has brought out a new camera for photographing on 65 millimeter film, which one big picture company is now using in a production. Several of the other large studios are said to be turning a very favorable eye towards this width.

While there has been much in a



WITAMIDION.—Developed by Paramount Pictures, Vitafilm marks the first use in feature film production of negative running horizontally through the camera to provide an aperture wider than that of conventional 35mm film. VF is 8 sprocket holes in width.

normal film stock and that of the Grandeur is that the latter is cut in wider strips and the perforations are of a slightly different pitch. Eastman is the only firm at present making the 70 millimeters width film, and the only



1000-AD.—Camera ate 45mm negative, which is printed on 70mm film that provides space for sound track. Success of Vitafilm has stimulated interest in other studios in the use of wider size negatives.



MUCH OF THE action in "Blackboard Jungle" takes place in school classrooms, and the photographic problem was to shoot those scenes so that dialogue could be exchanged between students in the front and those in the rear seats, without resorting to multiple

cuts or re-focusing on each player as he spoke. Here, use of Tri-X enabled cameraman Russell Harter to stop down the lens to gain the necessary depth of field to keep all in sharp focus.

—All photos courtesy Metro-Goldwyn-Mayer.

Filming "Blackboard Jungle"

The new Eastman Tri-X negative was ideally suited to the photography of this dramatic production where it was necessary to gain the maximum depth of field on most shots.

By HERB A. LIGHTMAN

"BLACKBOARD JUNGLE," M-G-M's hard-hitting, highly controversial drama of juvenile delinquency, represents a significant step forward for the motion picture industry in that it is the second major studio feature to be photographed almost entirely in the new Eastman Tri-X Panchromatic negative.

This ultra-fast emulsion was selected for use in filming "Blackboard Jungle" because of an unusual technical problem arising out of the dramatic demands of the situations to be portrayed. A majority of the action in the film takes place in high school classrooms, and director Richard Brooks

wished to stage that action so that dialogue could be exchanged between the students in the front and those in the rear seats, without resorting to multiple cuts or re-focusing on each player as he spoke.

To handle such situations all in one composition called for unusual depth of field in order to insure the sharpness of both extreme planes of action. To stop the lens down far enough to create this depth of field and using ordinary medium-speed negative materials such as Eastman Plus-X or Dupont Superior 2, it would have been necessary to use a tremendous amount of light. The alternative was to

use the new high-speed Tri-X so that the lens could be stopped down sufficiently while using a very small amount of light.

Director of photography Russell Harlan, A.S.C., found that 1/500 was the stop at which a maximum depth of field was achieved. In other words, stopping the lens beyond that point resulted in very little material increase in depth of field, so 1/500 was the stop used generally throughout the picture. With the Tri-X emulsion it was possible to shoot at this aperture, using a level of illumination varying between 100 and 125 foot-candles. Harlan further alleviated his depth problem by using a 50mm wide-angle lens on all interior sequences.

Before the new negative was approved for the production, Harlan made extensive tests. One of these included a closeup of a girl lighted with a single candle on the table before her and with a spot rim-lighting her hair. The result was so impressive that director Brooks was completely sold on the idea of using the emulsion.

"Blackboard Jungle," because of its violently dramatic character, is essentially a low-key picture calling for contrasty lighting and a high percentage of shadow area. Ordinarily, in using a high-speed film, the result would be flat, lacking in snap, with the shadow area blocked in solid with gray devoid of either depth or detail. The Tri-X negative permitted rich low-key photography, even with a stopped down lens. It "reached into the shadows" to record detail and gave a luminous quality to what might otherwise have been a colorless, gray result. There is depth and modeling in the photography that lends a third dimensional quality instead of the cardboard cut-out effect that often results when a high-speed negative is used.

The interior of the high school used in "Blackboard Jungle" is actually one large combined set on a single sound stage, including all of the classrooms (both upstairs and downstairs) in their proper spatial relationships. This layout saved excessive moving about of equipment and personnel and enabled Harlan to set up and light sequences in about half the normal time.

Night exteriors in the film are especially well-handled and a great deal of depth was achieved with very little light, permitting compositions having a great deal of scope.

All of these scenes were shot on the studio back lot under controlled conditions—but by using Tri-X Pan for night sequences shot in actual locations it was possible to shoot average street scenes at night by available light, that is, without the need for booster illumination. No arc lights were used in filming "Jungle" (nor were any necessary) except for effect shots, such as sunlight coming through a window.

Because the Tri-X negative produces such remarkable shadow detail, less fill light was required and a corresponding amount of time was saved in lighting. In commenting on this, Russ Harlan observes: "To give you an idea of the speed with which we shot, I might mention one sequence filmed on location in a high school auditorium packed with about 600 students. We worked with very few lights. Starting at 9:30 in the morning, we were finished at 10:45 and back in the studio for lunch—something of a record, in view of the fact that if we had been shooting with ordinary black and white film the sequence would have taken a full day or longer to shoot."

Tri-X Pan negative was used exclusively in filming "Blackboard Jungle," except for about 1,000 feet of sunlit exteriors when Plus-X film was used. However, one incident which occurred sharply illustrates the versatility and range of the new Tri-X emulsion. A sequence shot in the street exterior set on M.G.M.'s back lot was filmed in sunlight at 1/60 using Plus-X film. Sometime later, retakes on the same sequence became necessary and the crew returned to the same location on a cloudy, overcast day. Using the Tri-X film and an aperture of 1/8, Harlan was able so perfectly match the new scenes with those previously shot on Plus-X.

Another striking proof of the latitude and range of Tri-X negative is evidenced by the fact that the classroom sequences usually involved about 30 students of varying complexions. There were blacks, Negroes, deeply-tanned Puerto Ricans, etc. With Tri-X, Harlan said, it was possible to get a correct rendition of such scenes with less trouble than is normally encountered with other types of black-and-white

(Continued on Page 158)

THE NEW EXTERIORS in "Blackboard Jungle" were shot on Plus-X and matched perfectly with the Tri-X interior footage. Here director of photography Russell Harlan, A.S.C., lines up his camera during a rehearsal of action by Glenn Ford and Anne Francis.



THE CLOSEUPS in "Blackboard Jungle" dispel the contention held by some that satisfactory closeups cannot be made with a super-speed negative film. Glenn Ford is shown here in a dramatic scene with Vic Morrow.



CinemaScope Photographic Techniques

By CHARLES G. CLARKE, A.S.C.

Editor's Note: Arthur Clarke, who is one of Twentieth Century-Fox's top directors of photography, has photographed more film in the CinemaScope process, perhaps, than any other cinematographer in the industry. His knowledge of and experience with the popular wide screen medium is set down here for the benefit of other cinematographers. The text with illustrations also is being published in booklet form by Twentieth Century-Fox Studios.

WHENEVER ANY new technique is introduced, it is frequently human nature to view it with a certain amount of reservation and doubt. Probably this is the result of our becoming so accustomed to the previous and older methods that we approach new concepts hesitatingly. The CinemaScope technique of making motion pictures with stereophonic sound has met, to a limited

degree, this reluctance to accept new ideas. I know this from experience, because in the course of filming CinemaScope during the past two years, here and in Europe, I have been asked many questions which indicate to me that the questioner is thinking in terms of applying the older technique to the newer medium. Also, many inquiries resulted from the usual host of misconceptions,

misunderstandings and false information which inevitably surround new and challenging developments.

In my talks with producers, I gather that many feel that the CinemaScope method is more expensive to use on production. More than one hundred films have now been made in this medium and it has been established that production costs are no greater, and in most cases less, than if the picture had been made in the older methods.

CinemaScope provides a presentation which simulates the wide angle experience of human vision and because of this most scenes can be staged with fewer cuts and camera angles than were formerly necessary. This is a big economic saving because the additional angles required by the older technique were time consuming, and as a result, costly to make.

Another misconception is that the size of the sets for CinemaScope productions must be larger. Perhaps I can point out why. With CinemaScope, sets usually call for less construction, but to explain this I had better start at the beginning and first explain the CinemaScope optical system.

As most readers know, the Bausch & Lomb CinemaScope attachment lens itself is an optical unit that fits in front of any ordinary motion picture camera lens. (See Figure 2.) It follows that it can be used with any 35mm camera and with many of the lenses that are normally used with that camera. What the CinemaScope attachment actually does is to take in an angle of vision, horizontally, two times that which the camera lens does without the attachment, the vertical angle of view is not changed. The picture seen by the lens combination is photographed in the camera through an aperture 23.86mm by 16.67mm in size.

When this attachment is used, for example, on a 50mm lens, the height of view remains the same but the width of view is similar to that obtained had a 25mm lens been used. The combination



"CINEMA SCOPE provides a presentation which simulates the wide angle experience of human vision," according to Arthur Clarke (holding meter reading in photo at left), "and because of this most scenes can be staged with fewer cuts and camera angles than were formerly necessary."

of the CinemaScope attachment on the camera, the camera aperture, the projector CinemaScope attachment and the projector CinemaScope aperture results in a picture on the screen which is approximately $2\frac{1}{2}$ times as wide as it is high. These same proportions follow with any of the other photographic lenses.

Although the principle is the same, our newer lenses combine the functions of the conventional camera lens and the CinemaScope attachment in one housing and the complete arrangement has been designed as one optical system for optimum performance. Such a lens, mounted on a camera, is illustrated in Figure 3. Figure 1 shows the various Bausch & Lomb CinemaScope lenses now available. There are the 35mm., 40mm., 50mm., 75mm., and 100mm. In addition there recently became available a 152mm lens, which is particularly suitable for background projection plate photography.

In normal practice the usual lenses used are the 40mm and 50mm., and other lenses are used for the same reasons that they are employed in regular photographic practice—the larger lenses being used for closeups, telephoto effects and the like. With this understanding of the lenses, and the following examples, it will be clear that sets need not be built as high nor any wider than formerly.

For instance, let us imagine that we want to photograph a small office set. With the older method we would have probably used a 25mm lens in order to keep within the walls. Suppose the action required a person to enter from a door in the foreground and go toward the rear and sit down at a desk. With the old technique, a ceiling piece would probably have been required to back up the person when in the foreground, and the camera would pan to hold on the desk.

The same scene when filmed in CinemaScope, although photographed from approximately the same set-up with a 50mm lens, would not require the ceiling, as the vertical angle of the scene is now less; however, the horizontal angle is the same as before. Rather than pan the camera to hold the character center, we would likely may find and take advantage of stereophonic sound recording to enhance the actor movement as the sound moved with him in a natural way. Furthermore, the size of the figure in the rear of the set would not be so diminished because of the perspective drawing of the 50mm lens used as compared to the 25mm lens in the older method, therefore making it unnecessary to shoot a closeup angle. If it were the intention in the scene to get closer to the person at the desk, we could dolly in a little. There would be

(Continued on Page 332)

FIG. 1—The original CinemaScope "attachment" lens has given way to the newer combination single-unit lenses pictured below. These are five of them: a 25mm., 40mm., 50mm., 75mm., 100mm., and a 152mm not pictured. The 40mm and the 50mm lenses are the most widely used.

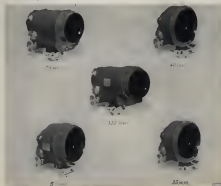


FIG. 2—The early Bausch & Lomb CinemaScope "attachment" lens shown was an anamorphic unit placed in front of the regular camera lens.



FIG. 3—Showing the modern Bausch & Lomb CinemaScope lens mounted as a 25mm. modern picture camera. It combines in one unit the regular camera lens plus the anamorphic lens necessary in CinemaScope with screen photography.

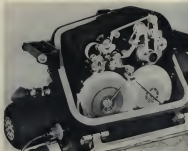


FIG. 1—Blimp cover is removed to show the magnetic recording unit of the Arriford-35. Sound is recorded on 17½mm wide coated perforated film, which travels at same speed as the camera film—synchronized sound speed.



FIG. 2—Arriford with blimp closed. Camera (starting switch only) is seen mounted on the pre-head at left.

A Magnetic Sound Recording Camera

Picture and sound are recorded simultaneously on two separate films with the Arriford-35, which features a compact, built-in magnetic sound recording unit.

By ARTHUR ROWAN

WHEN MAGNETIC tape recording became a reality, among those who envisioned its application as an integral part of a motion picture camera was Arnold & Richter of Germany, manufacturers of the well-known line of Arriflex motion picture cameras. Recently, this company introduced the first practical "single-unit" double-system picture and sound recording camera. Titled named the "Arriford," the 35mm version was recently demonstrated before members of the American Society of Cinematographers by Dr. Robert Richter, head of Arnold & Richter, and Paul Klingenstein, of Kling Photo Corporation, New York, U. S. distributor of Arriflex equipment.

The Arriford 35 is a combination of the latest Arriflex 35mm Model IIA camera and a magnetic recording unit which uses perforated 17½mm magnetic recording film. As may be seen in the photos above, the combined units are housed in a compact sound blimp having external controls for both sound and picture recording.

Design of the Arriford was born out of the growing demand for a compact and portable double-system sound re-

coding camera for use in newsreel filming, in location sound filming, industrial film production, and in low-budget TV film production, etc.

The camera unit is the well-known Arriflex 35mm in a blimp, and features parallax-free through-the-lens focusing and sighting, positive follow-focus control, three-lens turret, instant-change 400-ft. film magazine, 180° shutter, film transport with register-pin action, and new internal gear and drive design that insures maximum quietness of operation. Because the camera and blimp were previously described in an article in our February, 1955, issue, we shall deal here mainly with the magnetic film recording unit of the camera.

In the Arriford, the Arriflex camera component is permanently joined to the recorder unit by a special precision gear drive, which assures constant speed and smooth, even motion in the mechanisms driving both the negative and magnetic films.

The 17½mm magnetic film travels in a conventional manner over a recording head and a playback head, as

shown in Fig. 3. The monitor or the cameraman, using headphones, can cut in on the microphone, or listen to the actual recording through the playback.

Either a 26-volt constant speed DC motor, or a 110-volt synchronous motor may be employed to drive the Arricord. Either or both motors are available from the manufacturer or the U. S. distributor, King Photo Corporation. They can be interchanged quickly and easily without the use of tools.

The salient purpose of the Arricord-35 is to afford synchronous sound picture production away from customary studio facilities. With this in mind, let us consider for a moment the governor-controlled DC motor. It is a precision motor having a centrifugal type governor, which drives the camera at a film speed of 24 fps. The tolerance of speed fluctuation is so slight, that even voltage drops of as much as 30 per cent do not affect its accuracy.

The power source for this motor is supplied by a power pack (Fig. 5) containing four 6-volt lead-acid batteries wired in series. The battery capacity is eleven ampere-hours, which affords running the camera for approximately 2½ hours or the equivalent of 13,500 feet of film. (An important feature in connection with this motor is the unique clutch on the drive shaft which, in case of a film jam, disengages automatically.) All batteries required for camera motor and sound amplifier are contained in the single battery case (Fig. 5). For some applications of the equipment, it may be found more convenient to separate the batteries and put the "B" battery in the amplifier case together with, say, a 6-volt dry cell "A" battery, and carry the camera batteries separately. A battery charger and voltmeter are also included in the battery case.

The complete Arricord outfit—the camera-recorder, amplifier and battery case—packs easily into three relatively small carrying cases. Compared to the usual professional equipment necessary to making high-quality sound-film productions, the Arricord has the advantage of compactness and light weight so necessary to successful production in the field of newsreels, industrial and training films, and television program and advertising films.

In actual operation, the camera is handled much the same as a conventional "single-system" optical sound camera. The end products, however, are (1) a negative film, and (2) a separate sound track film. The editing hazards and limitations which exist in single-system (optical) sound films do not exist with films photographed and recorded with the Arricord. The picture film may be cut at any point.

Matching up of the sound track and picture film by the editor is accomplished in the usual manner where clip-stick and slate is used in photography. In addition, there are additional cue marks provided on the picture film by the Arricord, which has a built-in cueing device that flashes a light, when the operator presses a button, that registers a mark on the film edge where the sound begins; at the same time, an audible signal is made at a comparable point on the magnetic sound film.

The important features of the Arricord are shown in the accompanying photos. In Fig. 1 the blimp is open to reveal the magnetic recording mechanism and the magnetic film. The photo adjoining (Fig. 2) shows the blimped Arricord from the recorder side. Here may be seen the camera control switch on the handle, which affords the camera operator easy access to stopping and starting the camera at the same time he operates the pan handle.

Figure 3 shows the camera removed from the blimp and reveals the complete magnetic recorder mechanism. The magnetic film travels from the 2nd spool, through the damping mechanism to the recording head (1) and past the playback head (3). The sound drum with its stroboscope disc is shown at (4). A seven-inch flywheel on the back of

(Continued on Page 317)



FIG. 3.—Arricord camera removed from blimp and showing the magnetic recording mechanism components: recording head (1), playback head (3), adjustable shut-pot (2), and sound drum with stroboscope disc (4).



FIG. 4.—View of aperture on film side of the camera. Here, doors are removed from the displacement-type film magazine (4), which holds 400-ft. of film. Also seen is the 3-lens turret (5) and the motor (7), which is readily detachable.



FIG. 5.—The complete Arricord-35 equipment. The blimped camera is mounted on an Arricord tripod and base. At left is the battery case (6) and the amplifier/microphone (8) and microphone.



FIG. 1—CAMERA VISION camera, mounted here on Chronicle crab daily, is a combination TV and film camera designed for time-saving feature film production. It may also be used to simultaneously record a live TV show and photograph it on either 16mm or 35mm film, only in black-and-white.

CameraVision—New Video-film System For Feature Production

By FREDERICK FOSTER

DESIGNED FOR an entirely new concept of feature film production in which electronics are combined with some of the best features of television film production is the CameraVision System, which was given initial public demonstration in Hollywood in April.

Basically, CameraVision is the integration of two types of cameras—a motion picture camera joined with and calibrated to a television camera. This combination, according to Philip Rivers and Arthur S. Lyons, of CameraVision Productions, Inc., is able to effect substantial savings in production costs of motion pictures for theatrical and television use.

Since the advent of television, there has been increasing interest in and some accomplishment toward a practical "wedding" of the best features of the television and film cameras, if for no other reason than to enable viewing by electronic means the same as it is actually being filmed. However, CameraVision goes beyond this, as we shall presently see.

CameraVision, which Mr. Rivers describes as "the first direct influence of automation on motion picture production," is based on the successful multiple camera method of photographing live television shows. It involves the use of two or more CameraVision units,

which feed the electronic pickups of each to a monitoring panel where each camera take is evaluated and selected for recording or for transmission as a live TV show—at the same time the show is being recorded on film.

Each CameraVision camera may be used as a TV camera alone, as a film camera only, or with both the film and video components operating simultaneously—one producing a top quality motion picture negative (black-and-white or color) and the other serving the combined function of providing (a) an electronic finder and (b) electronic monitoring of the camera pickup, at the same time selecting the same show directly on the air.

With the multiple camera method having proved so successful in the production of television films, such as "I Love Lucy," "The Burns and Allen Show," and others, CameraVision now promises a new and superior instrument for the production of theatrical films by the multiple camera method—the solvent feature of which is the speed by which feature production photography can be materially increased.

The CameraVision "camera," as we shall call it here, even though it is actually two cameras operating as a single unit, is no overnight development. Actually development began in September, 1949, and a long list of technical needs have contributed toward its success. Among them are Harry Gunning,



FIG. 3—FRONT VIEW of stripped CameraVision camera, showing parts for TV camera lenses, film camera lenses, and the built-in exposure meter photoelectric cell, indicated at (1).

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him, inventor of the Cunningham Combat Camera; Harold Jury, formerly with CBS; Gil Wayland, currently with CBS; James Cunningham of Techno-Instrument Company; Glenn Robinson, John Willet, and Ray Hellmuth of Aereon Associates, Pasadena, Calif.; Jack Strauss, and Bert Gleason, veteran cinematographers.

So ingeniously have the two cameras been fitted together that the complete unit, blimped, is no bulkier than a blimped Technicolor camera (Figs. 1 and 5). Considerable weight has been saved and bulk reduced through the use of plastic materials in construction of the blimp.

The four photos below show the camera blimped and unblimped and point out certain unique features.

From the operator's position (rear of camera) the television camera is at the right and the film camera on the left. In the unit demonstrated in Hollywood, the film camera was a 16mm Arnon "1200." The camera base of the unit is so designed that either a 16mm camera or a 35mm camera may be used interchangeably. When shooting cels for 35mm, a Mitchell camera is installed having a film magazine with a capacity of 33 minutes of continuous shooting.

Perhaps the most noteworthy features are the series of remote manual controls at the back and side of the camera, some automatic, for setting the lens stop, focusing, and gauging light values. These are seen in Figs. 5 and 6. Here



FIG. 3—CAMERAVISION camera unit used in multiples of two to create and pickup result of each is fed directly to monitor in the portable control room. Here, there is provided a binocular mode for operation, or an on-sight guide in putting the film record together.

some of the operational convenience of the television camera is adapted to the film camera. As with the conventional TV camera, switching from one lens to another is accomplished by the cameraman from operating position simply by turning the lens selector (7), Fig. 6, which revolves the turret and brings the desired lens into "taking" position. In a like manner, focusing and setting the

f/ stop is accomplished. Turning knob (4), Fig. 5, controls the diaphragm setting of the lenses of the film camera, while focusing is accomplished by turning knob (3), Fig. 5—all this from behind the camera. It is unnecessary for the camera operator to enter the focus or f/ stop scales on the lenses. This reference is provided for in a con-

(Continued on Page 304)



FIG. 4—FRONT VIEW showing blimp removed. The rotary, 3-unit phono is shown at (2). All six camera lenses are positioned and focused automatically and simultaneously.



FIG. 5—REAR VIEW showing electronic viewfinder head and lens, also focus and diaphragm selector dials immediately above. Knob (2) controls focus; knob (4) sets diaphragm of film camera lenses.



FIG. 6—VIEW of instrument panel on rear of camera. Dials (3) show aperture the lens is on, and the focus and aperture settings. The lens selector knob is shown at (7).



TEL-ANIMASTAND, showing Composite table with glass plate and shadow board



SAME UNIT with Access No. 32 animation table. Newly-opened plate in place.



NEW glass plate in place on the Tel-animastand "insert" art table

New Animation And Title Equipment

New Animation stand and title hot press of interest to the producer of TV and industrial films desirous of stepping up production.

ANIMATION AND TITLE-MAKING equipment priced within the reach of the average TV and industrial film producer was a feature of the equipment display at the recent SMPTE semi-annual convention in Chicago. The animation equipment, trademarked Tel-Animastand, and the title printing press, trademarked the Tel-animaprint, are both distributed nationally by S.O.S. Camera Supply Corporation, New York, N. Y.

Introduction of the equipment is

particularly timely in view of the increasing use of animation, both in TV commercials and industrial film productions. With the daily increasing demand for this work taxing to capacity the independent studios servicing film producers with animation and titles, more and more producers are giving thought to installing their own animation and title making departments.

The Tel-animastand, pictured above,

enables the producer to shoot technical and/or cartoon stop motion, put life into otherwise "dead" sequences, and inject realism and a self-suggestive into "commercials." With this equipment, independent film producers can offer clients a broader scope of service. Even major studios can profitably employ the Tel-animastand in making "dry runs" and test shots without interfering with schedules going through the studio's regular production equipment.

The Tel-animastand embodies features of the photo-relaxer, motion picture camera, micrometer and the sound-house turntable. A movable, counter-balanced, vertical carriage is provided for the camera which photographs the

(Continued on Page 354)

TEL-ANIMAPRINT unit which produces titles and other text from hot foil for films



THE HOT TYPE holder is shown here in position for making impressions



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JOSEPH LASHELLE, ASC. (Seen from left) who spent 24 years at 20th Century-Fox, is shown here with actor-producer Cecil Wilde (at his left) for whom he directed the photography of "Storm Fear."

Wilde's initial venture as an independent. Picture was filmed in black-and-white in standard color, with most of the action taking place on this location.

The Cinematographer And The Independent

The rapidly developing field of independent production offers challenging opportunities for veteran major-lot cameramen.

By FRANK DAUGHERTY

IS IT A GOOD TIME for the cinematographer who has been with a major studio for a long time to think of making a change to the independent field? What has the director of photography to give the independent picture? Does work in the independent field lead naturally to television? Are there more problems for the photographer in the independent field than for the same photographer in a major studio?

These questions are generating in many photographers' minds today. Independent production is burgeoning. So is television. Is it time for a change?

Joseph La Shelle, A.S.C., who spent 24 years at Fox, and has recently been working in the independent field (having just completed "Storm Fear" with Cecil Wilde for the

latter's independent company), has had to answer some of these questions for himself.

The major lot director of photography, La Shelle says, has a definite and growing place in the independent field, because he is equipped by experience to save costs and to aid a production considerably in the pre-production planning. He works more closely in this field with the writer, the producer, and the director, and story, cast, and ways of lining up shots for the greatest economy in effort and money get his deliberate consideration. These matters, in the majors, are too likely to be departmentalized and not reach his attention, or receive his direction, until the day the picture goes before the camera.

The years the major lot man has had in reasoning on

these subjects and in too seldom being given a voice in them, has prepared him advantageously for the problems that will face him at once in the independent field.

In his seven weeks with "Storm Feat"—two of them on location—La Shelle's discovery that every new setup was a new opportunity for the cinematographer to think for himself gave him confidence that this is a field in which the major lot man will find new and vital interest in his job.

For a large percentage of the footage shot on location for "Storm Feat," La Shelle used a hand-held Arriflex—a camera with which he has been familiar for some time but now used in new and interesting ways earlier this year when he was in Switzerland.

When producer-director Wilde called for special effect shots of himself, Steven Hill, Lee Grant and David Stollery snowshoeing through trees in deep snows high in the Sawtooth Mountains of Idaho, La Shelle mounted operator Roger Sherman on a box on a narrow sled who followed them through, using the hand camera. There was no room for a dolly here. And as always, in snow, the shot could be made only once, with no rehearsals. Inexperience in a case of this sort could be costly.

For even more difficult takes in the same location area, when Wilde wanted an effect of the camera as postscript, following the actors and literally brushing aside the tree limbs as it passed, Sherman crawled a guard over the lens and literally let the hand camera push its way through the trees behind the players.

Back at the studio, where all the sets represented one house, La Shelle again brought the hand camera into use. Where, in tight places, a big camera on a dolly would have meant the removal of walls, he was able, with the smaller hand-held camera, to keep the walls up, get the shots, and save a considerable amount of time and labor.

It is his conviction that with proper training and a 1600-foot magazine added to the Arriflex, as he saw some of the Italian film companies using the camera in Switzerland, an ideal instrument is at hand for special effects, tight spot shooting, and great savings to the independent producer.

In some of the mountain shooting, La Shelle did haul the

big Mitchell up the sheer sides of mountains on a sled attached to a block and tackle; but many times, when shooting from the top of a rock where there was not even room for the larger instrument, or walking through deep snow, where it could not be pulled, he found the smaller camera invaluable.

This use of a single camera is only illustrative of some of the ways in which the cinematographer may devise new uses of his instruments for the independent picture, La Shelle says. Other problems will call for other measures and devices. But the point he makes is that the experienced cinematographer, with years of such problems behind him, has at hand for instant use the means for solving them.

On "Storm Feat," La Shelle faced some of these, too. The story was one of character clashes, several sequences taking the actors across the mountains in deep snow, the others being confined within the walls of the single house. These factors raised a number of questions early in the picture. Should the picture be in color to take advantage of the impressive seldom-photographed landscape of the snow-covered Idaho mountains? Wilde didn't think so. Neither did La Shelle. Color doesn't lend itself to strong dramatic action. It is too pretty. Running off several big color pictures together, they found them weak on the very points they wanted their picture to be strong. In the films screened, the great beauty of the backgrounds killed the mounting intensity of the story action.

Then what about CinemaScope? Joe had worked in it, was an expert in it—and had, in fact, been sent to Europe to help get some CinemaScope pictures started over there.

But there were only seven scenes in this picture. In a great deal of the action, they would be bunched together in twos and threes. Would the rest of the big CinemaScope scenes look empty or blanketed? It seemed likely. On the other hand, the normal small screen would greatly diminish the effectiveness of the tremendous landscapes. The 1.85-to-one wide screen was finally decided upon, and the choice proved a wise one.

The cameraman isn't the only one who brings new ideas to the independent field, of course, and Wilde himself gave

(Continued on Page 358)

A TONOGGAN served as a camera dolly for a sequence of chase scenes in the snow.



IN ROSES' rugged terrain, the light, portable Arriflex camera was used.





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NEWSREEL CAMERAMAN OF THE YEAR

Maurice Levy, Dallas, Texas
cameraman for NBC-TV, is voted
tops in his profession.

By LEIGH ALLEN

MAURICE LEVY, NBC-TV cameraman working out of Dallas, has been named "Newsreel Cameraman of the Year" in the annual "News Pictures of the Year" competition jointly sponsored by the National Press Photographers Association and Encyclopedia Britannica. This award, considered the highest accomplishment for a newsreel cameraman, means that among all contestants in the annual competition conducted by his own associates, Levy was adjudged the tops.

His award is based on a cross-section of his work consisting of a "portfolio" of newsreel stories. The competition was judged in four categories: spot news, sync sound, feature and sports. A portfolio, under the rules, must contain stories from at least two of the four categories. In the voting, Levy also won first prize in sync sound with an entry entitled "Spanish War Veterans," and also won first prize in sports with an entry entitled "Haley Basketball."

Other prize winners were: Feature category: first prize to Gordon Yoder of Telenews; second prize to Phil Pridny of Warner Pathé News; third prize to Lew Clark, WCAL-TV, Philadelphia.

Sync-Sound: first prize to Levy; second prize to Harlan H. Mendelsohn, KGA-TV, Denver; third place to William D. Snyder, WDAY, Fargo, N. D. Honorable mention went to Albert G. Gutz, CBS News.

Spot news: first prize to William L. Cooper, Jr., WJAR-TV Providence; second prize to the team of Richard A. Winter and Levi C. Nelson, KSTP-TV, St. Paul; third prize, a tie, to Gene Zerler of Warner Pathé and to the team of Dennis Chin and Wade Bingham of CBS News.

Honorable mentions in this category went to Frank O. Seed of Movietone News and to the team of James Oberste and Chris T. Button of KARK-TV, Little Rock.

Sports category: the first prize went to Levy, the second prize to Gordon Yoder, the third prize to Jesse Sabin of NBC-TV, with honorable mentions to Tom Priestly of NBC-TV and Jay M. Hytner of WBOT-TV in Des Moines.

Interesting is the fact that television newsreel cameramen captured the bulk of awards. Of the eighteen prize and honorable mention awards, fifteen went to TV newsreel cameramen. Of the remainder, two went to Warner Pathé newsreel men and one to a Fox Movietone cameraman.

This competition, largest and most inclusive of its kind ever held, was judged in 14 different categories. A total of more than 3,500 still pictures and 100 newsreel stories were entered in the competition from a total of 543 still photographers and newsreel cameramen. The top award in the newspaper, magazine and newsreel categories went to the individual whose entire year's work, as represented by a



MAURICE LEVY, NBC-TV newsreel cameraman working out of Dallas, Texas, winner of top award in annual National Press Photographers Association 1955 competition.

portfolio, was adjudged the best of all viewed by the judges.

The annual competition is a function of the educational and technical program of the National Press Photographers Association, which also includes the co-sponsorship with Britannica of short courses in photo-journalism—technical and editorial seminars at various colleges and universities from coast to coast. Increasingly of recent years this general educational program has paid attention to developments in the newer branches of pictorial communication, such as the picture story, color photography and theater and television newsreel coverage.

Newsreel judges included Ruess Frank, special events department of NBC; Walton C. Aspert, Vice President of Warner Pathé News; E. P. Genack, Manager of television programming for Eastman Kodak; Ray Knaggs, Regional Manager, Encyclopedia Britannica Films; Tom McMorow, Movietone News; Harry Robert, This Week in Sports; and John Knight, Paramount News.

A showing of the winning newsreels and an exhibition of the winning still pictures in the competition will be held at the annual convention of the National Press Photographers Association which opens June 8 at the Broadmoor Hotel in Colorado Springs. Awards will be given the winners who are in attendance at the convention. These include plaques of award for all first prize winners and medallions for second and third prize winners. Prize winners also receive sets of the Encyclopedia Britannica, a copy of the Britannica World Atlas, and copies of the 1956 Britannica Book of the Year, which will reproduce a selection of the top award photographs.

END



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A RAFFLE BOX and filter holder, such as the one pictured above, simplifies the use of professional-type systems. Filter Holder is marketed by National Cine Equipment, Inc., New York. It's used on 8mm and 16mm cameras.



Use Of Filters In Cinematography

The wise use of a filter will frequently make the difference between an excellent composition and a mere pictorial record.

By CHARLES LORING

IN HOLLYWOOD motion picture studios, filters are considered as much a part of photographic equipment as the camera and lenses. In recent years, semi-professional and advanced amateur cameramen have also come to recognize the tremendously important part played by the correct use of filters in producing better movies.

It is a fundamental law of physics that a filter transmits or passes light of its own color, and absorbs or holds back light of a complementary color. Thus, a yellow filter will pass yellow light but hold back blue light, which is complementary to it. Because all filters cut down (in varying degrees) the amount of light passing through the lens, it is necessary to increase the exposure to compensate for the addition of the filter. The number of times this exposure must be increased is known as a *filter factor*.

To illustrate the principle of the filter factor, let us suppose that the normal exposure for a particular movie scene is $1/56$, without the filter. Then, suppose we decide to use a yellow filter with a factor of 2. This means that the lens would have to be opened up one full stop, admitting twice as much light, in order to compensate for the amount of light held back by the filter. Instead of $1/56$, the aperture opening would now be $1/4$.

Basically, filters fall into three categories: (1) Those that are used to correct the rendition of certain colors in a scene so that they will accord in the proper tonal values as they appear to the eye; (2) those that purposely distort or exaggerate the tonal values of a scene for special effect; and (3) those used to reduce the amount of light reaching the film.

First, let us consider the filters that are used for corrective purposes. In black-and-white cinematography, blue water and blue skies tend to "burn up" (even when modern panchromatic emulsions are used) because of the excess of ultra-violet which they reflect. In order to tone such areas

(Continued on Page 228)



SOUND FILTERS, that attach directly to the lens, are manufactured by Eastman Kodak Company and others, and are available in camera stores.

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PRODUCTION STAFF of Cinema Associates, nearshore Los Angeles amateur movie club, filming location scenes for recent production, "Dinner Date."

Shooting Double-system Sound With A Single-system Camera

By LEO CALOIA

HOW WE SHOT a double-system sound picture, using a single-system sound camera, is an accomplishment that was born of the desire that is inherent in every ambitious amateur movie maker—to improve techniques and to emulate the professional in results.

Cinema Associates, which is the imposing title of a group of amateur movie makers in Los Angeles, had decided to shoot its next color and sound production with the same as do the Hollywood studios—making frequent cuts and changes of camera angles and at the same time recording each take in synchronized sound.

As we reviewed our previous efforts—"The Thing," "Joint Account," "Men of Vision," "Maid in Order," and others, it was more apparent than ever that there was something definitely missing in each of these pictures, which had been photographed in 16mm color with lip-sync sound. There was not enough variety in the camera angles, especially in long-continued musical and dialogue scenes. This is because all our pictures had been photographed with a single system sound camera. Because, with this system, the optical sound track and the picture are recorded on the same film simultaneously, it is not possible to make the cuts in editing that are possible when working with double system sound film, where the sound track is on a separate film from that of the picture.

As our old pictures unfolded on the screen, they reminded us of some television programs that are televised with a single camera—every scene is from the same angle, with the only variation being an occasional dolling of the camera or perhaps a quick switch to a telephoto.

And so we came up with a method that permitted us to shoot with one single-system sound camera, plus a second silent camera, and obtain the variety of shots common to professional sound feature productions. Title of our production employing this system is "Dinner Date." It demonstrates the greater flexibility we then achieved. There are ample changes of camera angles on dialogue scenes and no interruption of sound where the cuts occur, although we frequently stopped the Auricon camera for closeups, medium shots and other setups.

"Dinner Date" is the story of two neighboring housewives who, while hanging out the Monday morning wash, decide to run away from the drudgery of housework—from cooking, washing, sewing, etc., and getting little else in the way

(Continued on Next Page)



NIGHT CLUB sequences were filmed in a local night club. Producers followed regular professional practice in filming shots of this type—having players sing and dance to a playback as the action is filmed. This permitted wide variety of camera angles.



ANOTHER location still which shows how simple is Cinema Associates' production work. Whether a production is professional or amateur, it takes plenty of help to do a thorough job. Well organized and trained, group has made many 16mm sound films.

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of pleasure except a fifty-cent movie on Saturday night and a two-bit hamburger afterward, which the husband usually paid for after dipping into the wives' handbags for the money.

In the course of events, the wives meet up with two slick bank robbers on the lam who invite them to a fancy night club for dinner and champagne. While they are watching the floor show, the robbers are recognized. They flee the night club, taking the women with them. In their haste, the wives leave their purses after them.

Following this is a closeup of a clock showing the time, 5:30, and this dissolves to a shot of one of the husbands coming home from work. As he enters the living room, he finds his wife asleep on the sofa. Beside her is the daily newspaper with headlines telling of the bank robbery.

When the husband awakens her, she tells of dreaming about meeting the two bank robbers. It is now too late to get dinner, so hubby agrees to take his wife out. She dresses in the beautiful gown she wore to the night club escapade, her palatial shut friend husband is taking her to a nice cafe. But as usual, they end up at a hamburger drive-in. And, as in the past, friend husband has to borrow money from his wife to pay for their "diners." But this time she hasn't her purse. With a sly look she says the "moss have mislaid it somewhere"—and the picture ends here in a fadeout. This surprise twist leaves it up to the audience to decide whether or not the wives really ran away, met the bank robbers, and dined with them—or whether it was all a dream. It could have been either way.

Two cameras were used in filming the production—a Cine-Special and an Auricon-Pro 16mm single-system sound camera. The Special was used mainly for shooting the opening shots of each sequence, then we switched to the Auricon as we moved in for closeups with recorded dialogue. Accurate count of footage was kept on each take made with the Special, then the exposed film was wound back to the camera, re-moved and loaded into the Auricon, which was used as a recorder for putting a track on the film shot with the Cine-Special. This was done by copping the lens (on the Auricon) and seating the camera on cue—using the data sheet we kept while filming the "silent" scenes. The last scene in each sequence, of course, would be a closeup, ending in a fade, which led smoothly into the next closeup made with the Auricon with lip-sync dialogue.

An example of the actual procedure is as follows: In the opening sequence of the picture, the two housewives are shown emerging through their respective backdoors, each bearing a basket of wash. The camera then follows one of them as she starts to hang wash on the line. The clothesline breaks, then she struggles over the clothes basket. Kicking the basket furiously, she walks over to the fence and starts talking with her neighbor. This is the conversation that leads to the decision to run away. None of the dialogue is heard, however. The shots made up till now were filmed with the Cine-Special, using single perforated film that allowed space for a sound track to be post-recorded. The sound track for this sequence, recorded later by the process previously described, has a music background with narration explaining that it "was a day early in Spring. Not only was the sky blue, but it was blue Monday" . . . the music begins to fade at this point and here there is a direct cut to a medium shot of the neighboring housewife as she approaches the fence.

The next shot is a closeup of the first housewife, made with the Auricon sound camera, and is the shot in which the story-telling lip-sync dialogue is recorded. Briefly, the method consists of shooting all medium and long shots "silent" with the Cine-Special, and the closeups with lip-sync dialogue with the Auricon. Obviously, this permits more flexibility in the filming, enabling the camera to alternate between medium and longshot or closeup or changing camera angles as desired.

Shooting the night club sequences, which involved music and singing, proved an interesting experience for us. Fortunately one member of our group was a friend of the owner of a local night club. He was given permission to use the club interior one Sunday when the place was closed. Here we shot scenes of the two housewives being dined by the pair of bank robbers. Naturally, we concentrated on the entertainment—a young woman singer and a pretty Hula dancer.

We adopted the procedure employed by the major studios in shooting musical numbers: we made a recording of the male and the singer's voice on a phonograph record, then played it back during filming with the singer "mouthing" the words in strict synchronization with the record. Unlike in the studio procedure, where the playback music is recorded on the film at a later time, we charted the sound from the phonograph into the Auricon. Then we connected a speaker to the Auricon amplifier through the jack normally taking the headphones plug. In this way, the dancer or singer would hear the male

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as it was being recorded on the film and dance or "sing" is sync with it.

The vocal part of the record had 16 lines which we divided into 4 verses of 4 lines each. We were now ready to start our first scene, which would be a medium shot. The speaker and the phonograph were plugged into the amplifier. The vocalist was directed to sing, keeping in "step" with the record.

Our singer-actress was photographed singing the words of the song, but the sound track recorded only what was coming off the phonograph record. The scene was then shot, stopping the camera on the fifth line of the lyrics. The Auricon was then moved in for a closeup. The scene was started from the beginning again, but not the camera. This was started rolling when the singer was on the fourth line and was stopped on the ninth line. Then the camera was moved to get a pan medium shot of the audience listening and looking at the singer. Of course in this case, as with our actress singer was not in the scene, we started the camera when the voice on the phonograph record reached the eighth line, and stopped on the thirteenth line. The camera was then moved for another closeup of the singer, starting with the twelfth line and proceeding to the end of the vocal.

The scenes of the Hawaiian dancer were filmed in three setups. Her complete dance was shot in closeup, medium shot and long shot.

Now let's see what happened when we edited the song and dance sequence. The words on the sound track at the beginning of every scene duplicated or overlapped the wording at the end of the previous scene. It was then an easy matter to match up, say, a word at the end of a medium shot with the same word at the beginning of a closeup and cut and splice at that identical point. When it was finished on the screen, the scene flows smoothly, but the scene changes from medium shot to closeup. Of the Hawaiian dancer, three complete dances were filmed from different angles. When these scenes were edited, we still had three complete dance routines, but each had closeups, medium and long shots, with no break in the music. Only one complete dance sequence was finally used, however.

It took us all day to film the song and dance numbers at the night club. It is amazing at times what one hears when a motion picture is being filmed. Two of the regular night club waitresses arrived just as we were shooting the last scene. One asked the other if the production was professional or amateur. She observed that apparently it was amateur, as she "saw no one work

ing on any budget."

After the film was completed, we decided to "smoke previews," the practice before an audience that had no connection with the making of it. We previewed it before the members of the Los Angeles Film Club, one of the oldest amateur cinema clubs in the country. This club is particularly noted for consistently producing top-notch film scenarios. We believed that a club of this caliber would give us some really constructive suggestions on the preview films which were passed around after the show.

The written comments we received were indeed very helpful. But one in particular crossed us very much. It was the answer one club member gave to the question, "What is your opinion of the picture?"

He wrote: "Too dangerous for married people to see!"

ANIMATION AND TITLE EQUIPMENT

(Continued from Page 342)

art work. In two of the photos, a Cine-Special camera is shown mounted on the carriage.) Optical effects, such as pans, angles, zooms, etc., are accomplished by adjusting the camera in its mounting or moving it toward or away from the art work or subject. The zoom assembly is manually operated, but it may easily be converted to motor control. The mechanism is geared for fast, smooth travel of the carriage, affording the camera a range of width-of-field from 4 to 12 inches. Lining up the camera is simplified by calibrations on a scale plate, which can be adjusted to suit the particular camera being used.

The equipment has been engineered to utilize two types of art tables—one for large-size copy, such as maps, etc., and a compound animation table that provides for standard animation cells. With the first, copy up to 18 by 24 inches may be accommodated. The table can be turned, by aid of hand wheels, a full 360 degrees; at the same time, it may be moved forward, toward the back, or to the right or the left. A feature is the micrometer-like control of table position. Four Verder-Rust counters guarantee accuracy, both additive and subtractive, affording exact re-location of the table at any time. Counters indicate measurements in degrees of 1/20th of an inch. On special order, this can be increased to 1/100th of an inch.

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movement, and a quick-reference rule set in 1/20 of an inch increments. Three pairs of upper and lower peg bars and intermediate floating pegs are installed in the geared sliding units to afford extra large pan shots.

A photograph located on the right side of the unit (and shown in the third top photo) facilitates accurate panning of complicated camera movements by indicating any movement of the table in direct relationship to the camera lens center. The adjustable platen on this particular table is designed to hold set work this, regardless of thickness.

Still another feature in the built-in shadow box that provides a void which creates a dead black background necessary to making television superimpositions. Two light boxes have been designed to fit within the shadow box; one is balanced for black-and-white film for the purpose of backlighting pencil sketches and transparencies; the other is carefully balanced to the correct degree of Kelvin temperature for color films.

Some of the trick effects that may be accomplished with this equipment include displacement of flat paper and metal cutouts; single- and double-joined cutouts; moving shapes of string, thread, chains, etc., additive and subtractive partial replacement, such as chalk-and-blackboard, scratch-balls and paint on, with in and out movement of pin shadows to create unusual pictorial and image effects. These supplement the usual total displacement routines with cells, hand-painted movie film projected from above or below, and replaceable cutouts.

A shadow board fitted below the camera mount is adjustable for different cameras and contains a built-in matte device which is valuable in creating special effects by the use of mattes bearing such designs as a keyhole, heart, etc., and the usual half-frame, diagonals, etc.

The carriage acceptor will accommodate most popular makes of motion picture cameras adaptable to stop-motion photography. Still cameras can also be mounted for shooting stills, slides and opaque copy.

The Tel-anamprint hot press with its Acme peg bar line board, shown in the above photos, is a recommended companion piece to the Tel-anamprint. Besides its use for lettering title cards, it can also be used for lettering acetate cell overlays that are to be combined with photographs in photo-animation work.

The Tel-anamprint employs heated foamy-type, in a wide range of sizes, impressed upon color foils to produce ad copy, titles, credits, flip cards, etc. Minimizing the use of printer's ink, the results are clear, sharp impressions, fully dry and ready for immediate use before the camera. A feature is the fact no pre-heating of type is required. The type composition cards placed on the press, is heated in a matter of seconds and made ready for the impressions.

More detailed information on both pieces of equipment is available from the manufacturer-distributor—S.O.S. Cinema Supply Corporation.

THE CINEMATOGRAPHER AND THE INDEPENDENT

(Continued from Page 365)

a flip of innovation to the picture by deciding that he would first select his locations and then have his writer write the final script to fit them instead of shooting an already conceived script against haphazard backgrounds chosen by some Hollywood location manager.

With Mrs. Wilde and her two sons, Philip, 11, and Jeff, 9, Wilde spent the month of December on a six and

distinctive
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snowshoes picking the locations that were finally used in "Storm Front."

The result was that the location became one of the most vital elements in the story. And for LaSelle, its very remoteness and rugged character posed new challenges for him. Here the use of heavy cameras and equipment was out of the question. The light, portable Arriflex, therefore, was the camera circumstances dictated for filming the important action sequences that were staged here.

Fortunately the April weather favored the shooting as it went forward. Wilde and LaSelle decided to shoot the lower altitudes first, around 6200 feet, and climb to the higher ones (the Sawtooths rise to 11,000 feet) in story continuity—another innovation.

It proved a wise decision, for while the sun did come out and melt the snow in the lower location altitudes, it snowed continuously during the two weeks of location shooting at the higher elevations.

No cinematographer should jump to the conclusion that he can walk out of a movie and into an independent job. This isn't the tenor of LaSelle's argument. The important thing for the cinematographer, he says, is to know that as the independent field develops, it has a definite place for the experience and know-how of the major-studio man. There have been developed no shortcuts in it to problem solvers. That, only experience can bring.

MAGNETIC SOUND CAMERA

(Continued from Page 339)

the panel insures the maximum of constant speed in film travel.

Figure 5 shows opposite side of the camera. Here the covers are removed from the displacement-type magazine (6) which holds 400-ft. of film. Attention is also drawn to the 3-Aves turret (5) and the motor (7), which is readily interchangeable without need of tools.

The complete and compact Arriford 35 outfit is pictured in Fig. 5. The blimped camera, mounted on an Arri tripod and head, is facing forward. The battery case is shown at (8), and the amplifier-mixer at (9).

In 1935, the company of Arnold & Richter invented and patented the reflex motion picture camera shutter, which remains the salient feature of the Arriflex 35mm and 16mm cameras. With the introduction of the Arriford 35, the company has contributed another noteworthy "first" in cinematographic equipment. The company, incidentally, is presently working on a 16mm model of the Arriford, which it expects to have available later this year.

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FILMING "BLACKBOARD JUNGLE"

(Continued from Page 215)

film are used. One of the chief bugaboos attending the use of ultra high-speed films in the past has always been excessive grain size. This graininess manifests itself on the screen in the form of a coarse, indistinct "mossing" pattern. Perhaps the most rewarding fact about the use of Tri-X Pan in "Blackboard Jungle" is that there is no apparent graininess whatsoever. The overall quality is as smooth as if the film had been shot with an ultra fine-grain emulsion. While Tri-X has twice the speed of Eastman Super XX, it actually has less grain.

In regard to grain, the manufacturer warns that, as in the case of other negative films, granularity increases with the density of the negative. For this reason overexposure should be avoided in general and particularly with Tri-X Pan, because it is so fast that there is a greater danger of overexposure.

The new film has a daylight speed of 250 and a tungsten speed of 200. It is represented as requiring 13 foot-candles of light at f/1.4, 30 at f/2.8, 100 at f/4.0 and 400 at f/8. However, actual exposure depends largely upon the processing techniques used. Because of the high speed of the film and the limited sensitivity of some exposure meters an adequate exposure can often be gained even when the illumination is so low that a reading cannot be obtained, especially when reflected light measurements are made. Under such conditions, proper exposure must be determined by actual test.

The high effective speed of Tri-X Pan negative makes it ideal for use under the poor lighting conditions often encountered in newsreel photography. It is useful in shooting scenes on dark days or in large interiors like factories and hotel lobbies under existing light conditions where it would be difficult or impossible to set up auxiliary lighting.

In the studios it is ideal for shooting background process plates of street scenes from moving automobiles, etc. It is also very useful in shooting inserts because the film can be stepped down to increase depth of field.

Tri-X Pan was of great aid to director of photography Russ Harlan in achieving the dramatic mood, realism and stark documentary effect he was after in "Blackboard Jungle." The word documentary has been much misapplied in that it has become almost a cliché used to excuse poorly exposed, out-of-focus, sloppily framed and just plain bad photography. Harlan proves in this film that dramatic photography can be



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documentary-like and still have all the professional polish and technical craftsmanship rightfully expected of Hollywood feature productions.

"Tri-X Pan is a real cameraman's friend," Harlan comments. "You can shoot faster, lighting is greatly simplified—and when you need depth you can get it without burning up the set. Another great advantage is that with the lower light levels required, you can judge lighting much better, whereas with a high light level you constantly have to refer to a meter to maintain an accurate check of exposure. Not all pictures should be shot on Tri-X, but 'Blackboard' Jangle was made on order for it. Not only did it solve a lot of problems for us, but this picture gave us a chance to demonstrate all the advantages of this remarkable new negative."

THE USE OF FILTERS IN CINEMATOGRAPHY

(Continued from Page 348)

down to the point where they will be recorded on the gray scale in tones faithful to their value in the actual scene, it is necessary to use filters that will absorb or hold back the blue portion of the spectrum. The following are some of the filters most widely used for this purpose:

Area 1 or K1—Light yellow in color, these filters transmit most of the visible spectrum. They absorb only the shorter wave lengths of the ultra-violet area, producing a very small degree of sky and water correction.

Area 2 or K2—These yellow filters are slightly deeper in tone than those described above. They absorb enough ultra-violet and blue-violet to produce a noticeable darkening of the sky, allowing clouds to stand out in contrast. They slightly increase the contrast of distant landscapes, but produce (in gray tones) the closest approximation of correct color rendering as seen by the eye. They do not alter the quality of ordinary panchromatic make-up.

G Filter—This is a deep yellow filter which absorbs blue and violet completely, plus a portion of the blue-green spectrum. A very popular filter, it is especially valuable in open landscape scenes where there is considerable sky in the composition. It renders sky and water in rich gray tones, causing clouds and foreground objects to stand out in clear relief. It eliminates ultra-violet rays invisible to the eye but which would record as an overall haze on the film, especially in distant landscape scenes.

Wratten #21: Orange—Used with panchromatic film, it produces a slight over-correction of blue and violet tones, bringing out clouds in sharper contrast

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than does the G Filter. It is useful in penetrating haze, especially with longer focal length lenses. This filter causes panchromatic make-up to be lightened in some degree.

These four filters are, generally speaking, considered to be normally corrective and are used to give a more faithful rendition of the scene in terms of black and white tones. The following filters, on the other hand, produce a marked over-correction of true tonal values and, therefore, fall into the category of effect filters:

Filter 234: Light Red—This filter absorbs all of the blue-violet and most of the green portions of the spectrum up to a wave length of 5,600. It produces a dark sky effect and rich cloud contrast without appreciably lightening foreground subjects. Normal panchromatic make-up is lightened slightly.

Filter 254: Red—This filter produces an even more dramatic effect than the 23A and special make-up is necessary if faces show in the scene. This filter is often used with infra-red film to hold back blue and green light.

Filter 29F: Dark Red—Produces extreme contrast and over-correction. It is used with panchromatic or infra-red emulsions to create night effects in sunlight. Special make-up is necessary if faces show in the scene.

Filter 72: Deep Red—Absorbs all light up to a wave-length of 5,900. It is used almost exclusively for producing night effects in sunlight with panchromatic film. It creates a more natural effect than the 29F, especially in closeups, and no special make-up is required.

For softer night or "moonlight" effects, a 23A (Light Red) and a 56B (Light Green) filter can be combined with pleasing results. For fantasy effects or "dream" sequences, infra-red film is used in combination with 25A, 29F, 70, 72 or 88A filters. In such filming, blue skies are rendered very dark, with foliage almost white, producing a very unusual pictorial quality. Careful application of special make-up is necessary.

Green filters are not widely used in motion picture photography, but they have special characteristics that sometimes prove valuable. Because they transmit green light completely, they are especially useful in photographing trees and woodland scenes. The greens of the foliage appear brighter and with sharper detail, while blue skies are slightly darker. Green filters are valuable in shooting sunset scenes because they produce contrast between reds and yellows, holding back whatever portions of blue light are present.

Under effect filters, we might properly list diffusion filters and fog filters. These are made by various manufacturers and are usually available in 2 1/2" round as

well as 2" and 3" square types that fit into standard matte boxes. They are available in a range of correction values, and produce an overall diffusion or softening of detail for pictorial or dramatic effects.

Diffusion filters are effective in enhancing the pictorial values in landscape and seascapes. In Hollywood studios they are also used in shooting close-ups of all female (and some male) subjects, since they tend to soften facial lines and minimize unattractive features. It must be remembered that the motion picture cameraman cannot resort to dodging, retouching or diffusion in enlarging, as does the still photographer. Thus he must do all "correcting" at the time the scene is shot by means of lighting, proper make-up and the use of diffusion filters.

Fog filters are employed to produce an ethereal haze or mist over a scene. When smoke is blown onto the set at the same time, a realistic effect of swirling fog is created. Fog filters lend atmosphere to rear shots, dawn shots, waterfront scenes, etc. They also serve to intensify the dramatic mood of sequences played in graveyards, battlefields and other outdoor locales where an eerie quality is essential. Fog filters are available in a variety of densities ranging from a very light misty effect to a dense, ghostly effect.

Neutral density filters reduce the amount of light passing through the lens but without affecting the color balance or contrast of the scene. Gray in color and available in a great range of densities, they are often used in combination with color filters, diffusion filters, etc.

The primary use of neutral density filters is to allow the cameraman to work at a certain lens aperture in order to show a background into softer focus and concentrate attention on foreground action. They are also valuable in cases where the cameraman has only a fast emulsion available and the subject is so brilliant that he is not able to stop down the lens far enough to get the desired exposure.

Graduated filters are used when it is necessary to correct or hold back one area of a scene while allowing the rest to come through as it naturally would record. Such filters are especially effective when the cameraman wishes to reduce the density of sky or water areas in a scene without disturbing the normal balance of other portions of the composition.

Graduated filters, available generally in 2" and 3" squares, are obtainable in a great variety of densities and combinations. Some of the more popular types include: Aero 1-to-clear, Aero 2-to-clear, 15G-to-clear, 25 Neutral Density-to-clear,

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Graduated filters must be lined up by viewing directly through the lens, so that the corrected area of the filter just touches the horizon or landscape line. Both camera and filter are then locked securely in place, so that the foreground will be photographed through the color portion of the filter while "hot" sky or water areas are held back by the denser portion of the filter.

In shooting color film, color filters are rarely used, unless some definite special effect is intended. However, there are now on the market filters which are used to control color temperature. Sets of these filters consist of from 10 to 32 separate filters (depending upon the manufacturer) which range from light to deep amber and light to deep blue. Used in conjunction with a color temperature meter, such filters can be used to "warm up" or "cool" the general color quality of a scene.

For example, after four p. m. on an ordinary summer day, sunlight will grow redder as the sun descends toward the horizon. Under such conditions flesh tones will appear ruddy and unnatural. Where a color temperature meter reading is taken and a blue filter of the indicated density is placed before the lens, the "over-warm" quality of the light will be modified to give the effect of normal

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noon sunlight. Similarly, the "cold" light of early morning can be modified through the use of the proper degree of amber filter.

Corrective filters are invaluable in lengthening the shooting day when color films are used. They are also effective in "warming up" or "cooling down" a scene for sheer dramatic effect. From a technical standpoint they are an absolute necessity in achieving correct color temperature when shooting scenes with a combination of daylight and artificial light.

Clear blue filters of special quartz glass screen out stray blue-violet light and are used most effectively in color filtering to cut down haze in distant landscapes, especially when lenses of long focal length are used. Such filters have no filter factor, which means that no increase in exposure is necessary when they are used.

The Polar Screen is a special type of filter used both in black-and-white and color cinematography. Made of Polaroid, this filter almost miraculously eliminates glare and unwanted reflections from highly polished surfaces, as well as from glass and water. Depending upon the angle at which it is turned as relation to the sun, it can be used to appreciably darken a blue sky without affecting true renditions of other colors, thus providing a sky filter for use with color films.

In using filters, great care should be taken to see that such filters are of the best quality (absolutely clear) and that they are kept scrupulously clean. At best, a perfectly clear filter will account for a slight loss in resolution, and any imperfection in the glass or dirt on the surface will compound this lack of sharpness. Filters that give perfectly satisfactory results when used with ordinary lenses may sometimes produce a hazy image when used with telephoto lenses, because the large lens will magnify any previously unperceptible defects or dirt. For this reason, only the very highest quality of filters should be used when making telephoto shots.

CINEMASCOPE TECHNIQUES

(Continued from Page 137)

no distortion nor would the camera have to go in as close—also because of using the 50mm lens. Thus, we have an example of what happens in regular picture making—less construction is necessary, an extra set-up is unnecessary, stereophonic sound has been used, and above all, a cinematoplane scene is fresh and new because of the different treatment. Had this same scene been done in a natural interior, it can be understood why the necessary lights could have been more readily used be-

cause less of the ceiling area is included.

Naturally, one of the questions is—"How do you make a scene in a telephone booth?" By this time, the situation has been simply demonstrated in several films, especially "Night People," and the same logic applies as in the foregoing example except that it is no longer necessary for the actor to crowd in on top of the mouthpiece in order to hold him in this picture. This leads us to the question of the "Closeup."

The closeup is actually a relic of the silent film. It was necessary in those days to show facial expression, because the screen was small and there was no dialogue to convey what the scene was about. The closeup was carried over into sound films and is still useful for dramatic effects. In Cinemascope it is still useful; however, because of the vastness of the theatre screen, the huge "chokes" closeups are no longer necessary. In fact, the figure size of the "two-shot" is larger on the modern screen than was the "big head" on the older, smaller screen. I personally prefer to use the "over-shoulder" shot when closeups are required. This is possible about ninety percent of the time and it certainly lends itself to far more interesting composition plus effective use of Stereophonic sound. With Cinemascope there is still freedom of expression and selectivity—no rapid rules exist.

It has been my experience that when the Director rehearses a sequence, allowing the actors to make moves that seem natural, and devising action to keep the scene interesting, there is no great problem in adapting the camera to the scene so rehearsed. I believe the camera should be fitted to the action and not the reverse as is so frequently done. After all, we are telling a story and the audience should never be aware of the technique involved. After the geography of the set has been established, which is frequently done by the characters entering the scene in a long shot, I like to move in to a medium shot which covers the action. Now if the action is so staged that the characters are maneuvered to positions where the person having the most important dialogue is in an advantageous camera position, the camera can move forward or back and pan when necessary with the action as long as it is desirable to hold the scene.

I believe that it is more comfortable, interesting and natural to the spectator if scenes are untrimmed and a maximum number of cuts are made. A vast screen area approaching the periphery of vision requires new adjustment of the eyes each time the scene is changed. The wise director will stage his scenes to best use the advantages of this new technique. These advantages are great,

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for no longer must we confine the actors to zones forward and backward from the camera, but may now also use lateral movement. Spreading out of the action is what is done in stage productions, and indeed CinemaScope technique is like that of the theatre with the added advantage of being able to move in with the camera to accentuate the most important portions of a scene. Speaking of moving the camera, all of the established methods of motivating the camera—cranes, dollies, etc.—can be utilized provided the handling is smooth, because any unsteadiness becomes exaggerated on the wide screen.

As scenes are more interesting when the players are in different planes of depth, the usual problem of depth of field is posed. I have found that a practical solution is to work at a one-thousand foot candle key for interior day scenes. This permits a lens stop of f/4.5 which is sufficient to carry quite extreme ranges of focus.

All wide screen methods using 35mm release film require critical attention to the details which affect sharpness. This is mostly a matter of film resolution, but anything we can do to maintain maximum sharpness in the centers is on the credit side. Scenes of high contrast usually appear sharper, when projected, than those of a flatter nature, and it is fortunate that modern color films can

be lighted with relatively high contrast. With former color films, we had to use a great amount of fill light to prevent the shadow side of the faces from reproducing with an objectionable reddish hue. Modern color films have the ability to preserve shadow detail without color distortion, so we may now use less fill light to obtain more interesting lightings and also enhance picture definition. Night interiors now appear as they should and, with the small amount of fill light needed, the lighting level is not unreasonable for comfort nor is the amount of equipment used.

On large sets, the 10 k.w. lamp is the most practical unit, while on smaller sets, the 5 k.w. and 2 k.w. are the lamps used at the light levels suggested above. Obviously, the f/4.5 stop is not inflexible. Many natural interiors cannot be lighted at 1000 foot candles and it is not necessary unless there is a desire to extend depth of field. With natural interiors, photoflood lamps and the smaller independent units are successfully used.

The CinemaScope picture shape, as previously described, was chosen because it approximates the angle of vision of the human eye. Therefore, the spectator becomes a participant of each scene. With this fact in mind, it is good showmanship to devise as many camera angles as possible for "audience participation." Low camera set-ups, views

taken straight ahead from moving vehicles, etc., all create audience stimulation that lends excitement and enjoyment to the production. They should be used whenever logically possible.

Rear projection scenes are easily accomplished and none, such as automobile interior scenes, are enhanced in CinemaScope. Where formerly we could only see through the rear window, now we can also include the side windows, thus obtaining greater reality and a better conception of the speed of the vehicle. Those scenes which include the driver are a natural composition for CinemaScope. In cases where the background screen has to be larger than is possible with rear projection, the "traveling matte" method is used. In the former case, the planes are made within the CinemaScope lens.

One of the contributing assets of the CinemaScope system is stereophonic sound. This has done much to add a new quality of reality to the screen, and is capable of further imaginative treatment to realize its fullest possibilities.

The public has come to recognize the improvement in sound quality and satisfaction and there is considerable evidence that it likes the new effect created by the surround loudspeakers. The seven or eight major producers releasing stereophonic magnetic prints in CinemaScope have taken cognizance



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of the public's wishes and are making greater use of the surround effects in recent pictures. The use of stereophonic sound does not create any hardship in production.

In studio practice, these small microphones are spaced laterally at the end of the usual sound boom. The spacing is varied according to the nature of the scene and the microphone positions are easily manipulated as required by camera movement or to maintain intelligibility. Some effort is always applied to get original stereophonic recordings. When this is impossible or impractical, stereophonic post-dubbing is used to replace the dialogue of scenes which are good for picture but unsuitable for sound.

Theatre attendance has been greatly stimulated by the advent of CinemaScope, and the producer has the opportunity now to present his stories in a fresh and exciting medium through this modern technique.

END

CAMERAVISION

(Continued from Page 51)

venient bank of dials located at the rear of the camera—shown at (5) in Fig. 6.

But before describing this feature, another unique innovation should be mentioned—that of the automatic, built-in exposure meter which also registers its readings on a dial located in the same bank mentioned above. The photoelectric cell is actually three cells in one, each in a tubular housing and mounted on a rotary turret in the front of the camera, where the active cell reads the light value of the scene immediately before the camera. The three cells match the three pairs of camera lenses in respect to coverage of field, thus insuring infinite accuracy in readings. As the lens turrets are rotated to bring the desired lens into taking position, the corresponding photoelectric cell is automatically rotated to "reading" position. This component may be seen at (2) in Fig. 4. Figure 2 shows the surface (1) provided in the camera blimp that permits the photocells to scan the scene.

Now to get back to the bank of dials at the rear of the camera, which was mentioned earlier! Located just above the finder hood, they enable the camera operator to see at a glance: (a) the exposure meter reading; (b) the lens aperture setting; (c) focus in feet; and (d) the size of the lens in "taking" position. Other dials immediately to the left of these enable him to set the exposure meter for the film speed and shutter opening used in the film camera—similar to the adjustments normally made for this purpose on a hand-held exposure meter.

All six lenses on the CameraVision

camera—3 on the TV camera and 3 on the film camera—are focused and the diaphragms set automatically and simultaneously in the manner described above. The scheme for linking the lenses together to facilitate the automatic control was the most difficult problem encountered in the design and construction of the camera.

One of the important features of the camera, of course, is its electronic finder—shown at 6 in Fig. 6—which shows the exact field taken in by both the film and the television recording units. Here, the parallax problem was solved in a unique and quite simple way: instead of approaching the solution through beam-splitters and the utilization of a single lens as the pickup medium for both camera units, CameraVision engineers borrowed a page from the 3-D camera designers and arranged for the television camera to swivel on its base, changing perspective automatically as the lens controls are operated from the rear. By this method, absolute parallax correction is insured down to a distance of two feet.

The CameraVision system of motion picture production involves more than just the camera, which has been described here. In addition, and as a vital integral part of the system, is the 40-foot mobile control unit or van, which may be seen back of the camera in Fig. 1. Herein is the master video control room, radio section where sound is recorded on magnetic film, and the high-speed film processing equipment for rendering a quick-look or film record of any part or all of a production, as will be described later.

The master control room is equipped with viewing monitors for each CameraVision camera connected in closed circuit (Fig. 2). In addition, there is the master monitor which shows the images selected by the "mixer" or control engineer whose function is to edit the scenes, as they are recorded by the cameras, into an actual motion picture take, whenever a kinescope record is to be run on the production. This is an important step in the CameraVision production method, for the "kinescope" is utilized something like a "work print" of the production—as an editing guide in cutting the takes recorded by the two or more CameraVision cameras. It includes all the necessary fades, dissolves, wipes and other special effects which are made electronically as the picture is photographed. It should be explained here that this kinescope or "editing guide" is photographed directly from a TV tube in the usual kinescope recording method—an operation that is conducted in the mobile unit.

The monitor controls serve still an

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other phase of the system—that of direction of the action and the photography. With CameraVision, as Mr. Rivers points out, the director of photography assumes a position that is all the more director implies, in that he actually directs the operation of his multiple cameras from the monitor console, relaying instruction to the various camera operators via intercom phones. Here, working together as a production unit, are all the key technical men responsible for the production.

In the recent demonstration, Mr. Rivers pointed out how the kineoscopes can aid the director in planning and shooting production numbers in big musicals. The action can be rehearsed in two or more ways at which time it is recorded via the TV camera by kine-scope. Within a matter of minutes, this video film recording can be quick-processed and screened, enabling the director and the cameramen to choose the most desirable action for the final film take. In making the kine-scope, the film camera unit of CameraVision does not operate. The kine-scope is recorded on film in the master control room of the mobile unit.

This feature enables the director as well as other key production personnel to see, within 60 seconds after the action is picked up by the camera, a complete kine-scope recording for the

(Continued on Page 364)

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LOYAL GRIGGS, "Fury," (Technicolor; VistaVision), Cecil B. DeMille, producer-director.

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MARY STREIBING, "Cops and Robbers," (Samuel Goldwyn Prod., Technicolor, CinemaScope), Joe L. Mankiewicz, director.

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WHAT'S NEW

(Continued from Page 222)

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CAMERAVISION

(Continued from Page 265)

purpose of previewing and pre-editing a shot, a scene or an entire 33 minutes of action before it is photographed by the motion picture camera. The usual wait for dailies is thus avoided with consequent savings in production time. The usual time required for editing a film can be materially reduced because of the pre-editing afforded by the Cinecopia.

There is nothing in the Camera-Vision system that in any way affects photographic quality in feature film production. The film camera itself is the very unit which is used in photographing the majority of productions today—a Mitchell. The same lighting techniques are employed and the camera is afforded the same mobility as conventional major studio cameras. But, as Arthur Lyons, points out, the speed of shooting a production can be materially increased. Lyons, who has been closely associated with top stars and film producers in Hollywood for years, emphasized that any new system of photographing feature films must first and foremost never degrade photographic quality. "No camera can be used today," he said, "which will in any way produce inferior photography of players. This applies especially to Hollywood stars whose reputations have been built substantially by

the painstaking and artistic camera work of the industry's top directors of photography. No theatre owner, much less the stars and producers, will tolerate pictures in which technical quality is sacrificed by the use of some new-fangled system promising only reduced production costs."

"The mechanical developments in the optical phase of CameraVision," Lyons continued, "such as the automatic iris and focusing controls, are even more revolutionary in their direct effect upon reduction of production costs while maintaining top photographic quality."

"It is owing to these practical accomplishments that CameraVision is capable of photographing an entire scene with general set lighting, thus eliminating the necessity of varying camera setups, or relighting and rebacking for each long shot, medium shot or closeup. CameraVision reduces drastically the current practice of exposing some 100,000 to 500,000 feet of negative for a feature picture which emerges from the cutting room reduced to 7,500 to 10,000 feet of finally edited film."

"Finally, I want to point out that CameraVision is equally adaptable to exterior as well as interior filming. The mobile control room is easily transportable to location sites by means of its special tractor unit."

THE TREND TO WIDER NEGATIVES

(Continued from Page 262)

The present standard of 35 millimeters was arrived at purely by chance, as Mr. Gregory pointed out, being largely due to the coincidence that the standards independently arrived at by Edison and Lumiere coincided to within 1/1000 of an inch. This width film gave a frame of 18 mm. x 23 millimeters, and when the great theatres of the present came into being with colossal throw and large screens, a tremendous enlargement of this tiny picture was necessary. This can be done only to a certain point, and then the matter of grain interferes.

Then, too, the exigencies of sound pictures added another problem. The addition of the sound track to the film reduced the already too narrow frame. The advent of the stage revue type of picture also called for something larger than the 35 millimeter film and the size screen used for it.

Even before the coming of sound, many cinematographers, directors and laboratory men thought the standard four-to-three proportions of the frame was too high in proportion to width to

be artistically correct. With the addition of the sound track this frame was reduced almost to a square, and there has been much effort on the part of theatre owners and others to restore even the old rectangular proportions by means of shorter focus lenses and reduced projector apertures.

It was with this thought in mind to create a size film that would be more satisfactory for use in sound, and one which would give a greater picture on the screen, with an angle of greater width, that the Fox company started experiments which finally resulted in the Grandeur film.

From a practical viewpoint Grandeur offers many advantages over 35 millimeters. The director can film his spectacular scenes and dancing numbers with fewer cuts and no closeups. The cameraman has greater scope in his composition and much advantage in his lighting. Backlighting under the 35 millimeter conditions, since sound came and changed the perspectives of the frame, has been difficult.

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WIDER NEGATIVES

(Continued from Page 512)

However, with Grandeur, the cinematographer's task is lightened, inasmuch as the sets need not be so high, and back lighting at more effective and natural angles is possible. Direction of perspective scenes is simplified, for the proportions of the 70-millimeter frame (22.5mm x 25mm) means, as such, to give the scope for all movements with adequately large figures. Dancer scenes need not be followed by the camera, for there is plenty of room for them in normal long shots. Compared with this, this film does not present the difficulties of 35 millimeter. The regular field of view of the various lenses are different, naturally. The comparisons here shows of angles included by representative lenses on standard film with a frame of 19mm x 25mm (standard), and Grandeur with its 22.5mm x 43mm frame are interesting.

Focal length of lens	Standard Film	Graininess
40 mm.	43"	43"
50 mm.	34"	34"
75 mm.	31"	31"
100 mm. (45°)	27"	27"

Photographers who have used Grandeur recommend use of a lens approximately 2/3 longer than for 35 millimeter.

Sound men should be interested in Grassman, for it gives them a coast track 7 millimeters wide as against 2 millimeters of the standard. This naturally permits much greater volume-range in recording and gives a better quality. This in either Variable Density or Variable Area processes, but particularly in the latter.

The projectorist receives much from Grandeur also, for the projector for Grandeur has many features particularly pleasing to the operator. Chief among them is the fact that the film runs cooler than standard for the

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shutter is between the light source and the film.

Audiences thus far appear to have taken to the wide film, too. They receive many thrills in watching pictures made on this width. Chief among the outstanding audience features is the pseudo-spectroscopic depth that is displayed. It makes for more naturalness in the picture. The wide proportion removes the consciousness of the dead black borderline. Scarcely enough, there is an absence of grain unless you sit very close to the screen.

So much for Goodenough. It is here, and it has its advantages. Whether or not it will be accepted as a standard is a question no one at present can answer.

Mr. Fear, inventor of the new Fearless 65 millimeter camera, which is being used in actual production by his own company, claims that he has the ideal width. And there are many in the picture industry who agree with him. We will not dispute him; neither will we dispute the Fox organisation nor any of the others who are experimenting in an effort to arrive at a film width that will add to the development of the industry. We are only attempting to set down the facts as we find them.

The fact that one of the largest producing companies in the industry is using this camera at this time indicates that there must be a lot of merit attached. Also the fact that several other large companies, while not publicly announcing their plans, are known to have decided upon the use of 65 millimeter width films, would indicate that the final decision as to a new standard has practically been between the 65 millimeter and the 70 millimeter widths. Mr. Fear declares the 65 millimeter width is "the ideal width for perfect picture reproduction."

As in the case of the Grandeur film

The 65 millimeter width gives the great advantage of wider sound track, which, naturally, makes for better sound quality and greater volume-range in recording. Then, too, in the matter of the frame, the 65 millimeter has advantages over the 35 millimeter standard that has been breaking the hearts of the cinematographer for months. The "frame" of the 65 millimeter width is 22mm x .55mm, which is claimed by Fear and those who are advocating 65mm width to be the ideal frame size for perfect reproduction on the screen. The same claim to stereoscopic depth that is valuable as the Grandeur is claimed by Fear and other advocates of the 65mm width. Fear also claims that the 65mm film is of such size that the lens covers the entire field, which is one of the problems in the use of the 35 millimeter film.

From the cameraman's point of view, the most interesting feature of the new Four camera is the fact that it may be used for either 35mm standard or for the 65mm film. It is normally built for use with 65mm. But a special movement has been constructed for 35mm use, and is interchangeable with the 65 millimeter movement—requiring only a few minutes' time for the change. Two interchangeable sprocket-and-mill assemblies have been developed. So, by merely removing one movement and substituting the other, changesover to the alternate size film is accomplished.

The Fearless camera magazines are designed so that 35mm film can also be used in them. This is accomplished by providing the film rollers with a relief so that the 35mm film is properly guided into the magazine, and by furnishing special take-up spools for the narrow film. These spools hold the film centrally in the magazine and prevent it from creeping to one side or the other.

Standard 35mm magazines can also be used on the camera when using 35mm film, thus making it possible to use some of the equipment that the producer now has. This is accomplished by making a special adaptor which fastens on top of the camera. This adaptor partially covers the hole for the large size film and excludes all light from the inside of the camera when using the 35mm magazines.

Other features furnished as standard equipment in the new Farina camera include a quick focusing device; full force Ford lubrication to all major driven parts, all driving parts being enclosed and running in an oil bath; and two built-in footage counters. As special equipment the camera can be furnished with a built-in tachometer, a built-in high-speed gear box and a built-in sound recording mechanism.



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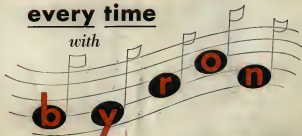
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